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DRUG MARKET TRENDS: COCAINE AMPHETAMINE-TYPE STIMULANTS

WORLD DRUG REPORT 2021

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Comments on the report are welcome and can be sent to:

Division for Policy Analysis and Public Affairs
United Nations Office on Drugs and Crime
PO Box 500
1400 Vienna
Austria
Tel: (+43) 1 26060 0
Fax: (+43) 1 26060 5827

E-mail: wdr@un.org
Website: www.unodc.org/unodc/en/data-and-analysis/wdr2021.html

PREFACE

Drugs cost lives.

In an age when the speed of information can often outstrip the speed of verification, the COVID-19 pandemic has taught us that it is crucial to cut through the noise and focus on facts, a lesson that we must heed in order to protect societies from the impact of drugs.

Drug use killed almost half a million people in 2019, while drug use disorders resulted in 18 million years of healthy life lost, mostly due to opioids. Serious and often lethal illnesses are more common among drug users, particularly those who inject drugs, many of whom are living with HIV and Hepatitis C.

The illicit drug trade also continues to hold back economic and social development, while disproportionately impacting the most vulnerable and marginalized, and it constitutes a fundamental threat to security and stability in some parts of the world.

Despite the proven dangers, drug use persists and, in some contexts, proliferates. Over the past year, around 275 million people have used drugs, up by 22 per cent from 2010. By 2030, demographic factors project the number of people using drugs to rise by 11 per cent around the world, and as much as 40 per cent in Africa alone.

There is often a substantial disconnect between real risks and public perception. In some parts of the world for example, cannabis products have almost quadrupled in potency, and yet the percentage of adolescents who perceive cannabis as harmful has dropped by as much as 40 per cent, despite the evidence linking regular use to health problems, particularly in young people, and despite the correlation between potency and harm.

New psychoactive substances also continue to be a challenge, as markets witness the introduction of new drugs that are unpredictable and poorly understood. Regulatory and legislative steps have been successful in stemming the tide globally, but in low-income countries the problem is on the rise; between 2015 and 2019, South and Central America recorded a fivefold rise in the amount of new synthetic psychoactive substances seized, while seizures in Africa increased from minor to substantial amounts. Strong increases were also reported in South and Southwest Asia as well as the Near and Middle East.

Meanwhile, the COVID-19 crisis has pushed more than 100 million people into extreme poverty, and has greatly exacerbated unemployment and inequalities, as the world lost 114 million jobs in 2020. In doing, so it has created conditions that leave more people susceptible to drug use and to engaging in illicit crop cultivation.

Furthermore, disparities in access to essential controlled medicines around the world continue to deny relief to patients in severe pain. In 2019, four standard doses of controlled pain medication were available every day for every one million inhabitants in West and Central Africa, in comparison to 32,000 doses in North America.

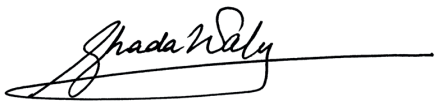
In parallel, drug traffickers have quickly recovered from the initial setback caused by lockdown restrictions and are operating at pre-pandemic levels once again. Access to drugs has also become simpler than ever with online sales, and major drug markets on the dark web are now worth some $315 million annually. Contactless drug transactions, such as through the mail, are also on the rise, a trend possibly accelerated by the pandemic.

Communicating facts about drugs and promoting science-based interventions is an absolute necessity if we are to reduce demand and supply of drugs, while also facilitating access to controlled medicines for those in need. It is also the surest path to eliminating stigmatization and discrimination and providing adequate treatment, as seven in eight people who suffer from drug use disorders remain without appropriate care.

At the UN Office on Drugs and Crime we are dedicated to pursuing and promoting fact-driven, human rights-based approaches to drug control and treatment.

I am proud to present to you this World Drug Report, which embodies our commitment to raising awareness and combating misinformation.

It is my hope that this report will inform policymakers, practitioners, and the general public on the facts of the world drug problem, and provide them with a powerful tool to share evidence and information, and in doing so help save and preserve lives.



Ghada Waly, Executive Director
United Nations Office on Drugs and Crime

WORLD DRUG REPORT 2021

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Acknowledgements

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Content overview
Chloé Carpentier
Angela Me

Analysis and drafting
Kamran Niaz
Thomas Pietschmann
Inshik Sim
Antoine Vella

Data management and estimate production
Enrico Bisogno
Diana Camerini
Hernan Epstein
Natalia Ivanova
Andrea Oterová
Umidjon Rakhmonberdiev
Francesca Rosa
Ali Saadeddin

Mapping
Antero Keskinen
Francesca Massanello
Irina Tsoy

Editing
Jonathan Gibbons

Graphic design and production
Anja Korenblik
Suzanne Kunnen
Kristina Kuttnig
Maria Moser
Lorenz Perszyk

Research support
Alan Arroyo

Administrative support
Andrada-Maria Filip
Iulia Lazar

Review and comments

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Jonathan Caulkins
Paul Griffiths
Marya Hynes
Vicknasingam B. Kasinather
Charles Parry
Afarin Rahimi-Movaghar
Peter Reuter
Alison Ritter
Francisco Thoumi

EXPLANATORY NOTES

The designations employed and the presentation of the material in the *World Drug Report* do not imply the expression of any opinion whatsoever on the part of the Secretariat of the United Nations concerning the legal status of any country, territory, city or area, or of its authorities, or concerning the delimitation of its frontiers or boundaries.

Countries and areas are referred to by the names that were in official use at the time the relevant data were collected.

Since there is some scientific and legal ambiguity about the distinctions between "drug use", "drug misuse" and "drug abuse", the neutral term "drug use" is used in the *World Drug Report*. The term "misuse" is used only to denote the non-medical use of prescription drugs.

All uses of the word "drug" and the term "drug use" in the *World Drug Report* refer to substances controlled under the international drug control conventions, and their non-medical use.

All analysis contained in the *World Drug Report* is based on the official data submitted by Member States to the UNODC through the annual report questionnaire unless indicated otherwise.

The data on population used in the *World Drug Report* are taken from: *World Population Prospects: The 2019 Revision* (United Nations, Department of Economic and Social Affairs, Population Division).

References to dollars ($) are to United States dollars, unless otherwise stated.

References to tons are to metric tons, unless otherwise stated.

The following abbreviations have been used in the present booklet:

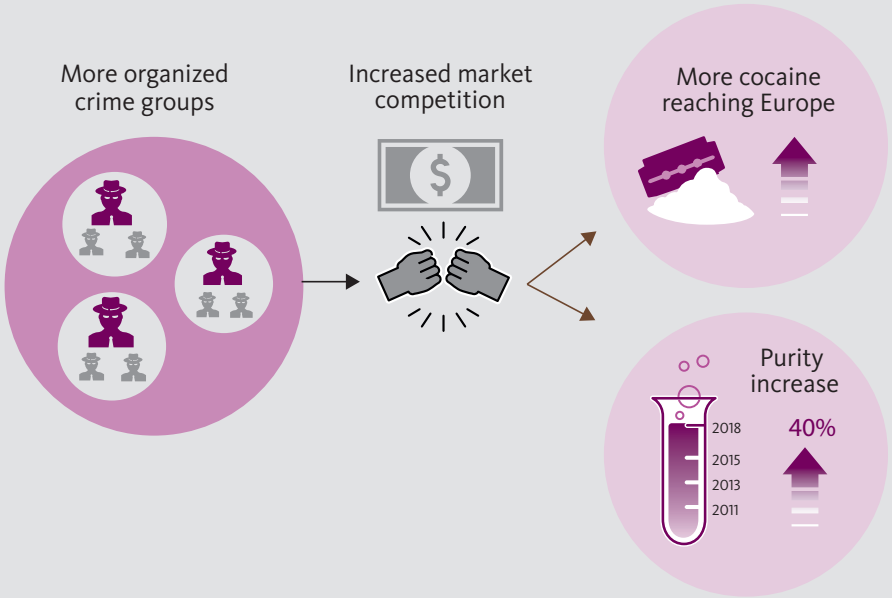
alpha-PVP	*alpha*-pyrrolidinovalerophenone
APAA	*alpha*-phenylacetoacetamide
APAAN	*alpha*-phenylacetoacetonitrile
ATS	amphetamine-type stimulants
BMK	benzyl methyl ketone
2C-B	2,5-dimethoxy-4-bromophenethylamine
COVID-19	coronavirus disease
Δ-9-THC	*delta*-9-tetrahydrocannabinol
DEVIDA	National Commission for Development and Life without Drugs of Peru
EAPA	ethyl-*alpha*-phenylacetoacetate
ECOWAS	Economic Community of West African States
EMCDDA	European Monitoring Centre for Drugs and Drug Addiction
Europol	European Union Agency for Law Enforcement Cooperation
FARC-EP	Revolutionary Armed Forces of Colombia-People's Army
SMART	Synthetics Monitoring: Analyses, Reporting and Trends
ha	hectares
INCB	International Narcotics Control Board
MAPA	methyl alpha-phenylacetoacetate
MDA	3,4-Methylenedioxyamphetamine
MDEA	methylenedioxyethamphetamine
MDMA	3,4-methylenedioxymethamphetamine
3,4-MDP-2-P	3,4-methylenedioxyphenyl-2-propanone
MDPV	3,4-methylenedioxypyrovalerone
NPS	new psychoactive substances
P-2-P	1-phenyl-2-propanone
PMA	*para*-methoxy-*alpha*-methylphenethylamine
PMMA	*para*-methoxymethamphetamine
PWID	people who inject drugs
SEDRONAR	Secretariat for Comprehensive Drug Policies of Argentina
UNODC	United Nations Office on Drugs and Crime
WCO	World Customs Organization

SCOPE OF THE BOOKLET

Constituting the fourth part of the *World Drug Report 2021*, the present booklet contains an analysis of the global market for cocaine, starting with a review of cocaine supply, including trends in the cultivation of coca bush and in the manufacture of and trafficking in cocaine at the global level and in the various regions. It also contains an overview of the latest estimates of and trends in cocaine use in different markets.

With respect to ATS, the booklet reviews the latest trends in the supply of and demand for methamphetamine, amphetamine and "ecstasy". It provides up-to-date information on the manufacture of each of these drugs, based on information on dismantled laboratories and seizures of precursor chemicals, and an overview of trafficking at the global level, with a particular focus on the regions and subregions most affected. The booklet also contains the latest estimates of and information on the trends in the use of amphetamines and "ecstasy" at the regional and global levels.

COCAINE SUPPLY CHAIN TO EUROPE HAS BECOME MORE EFFICIENT, RESULTING IN GREATER SUPPLY, A PURER PRODUCT AND INCREASED AVAILABILITY



COCAINE

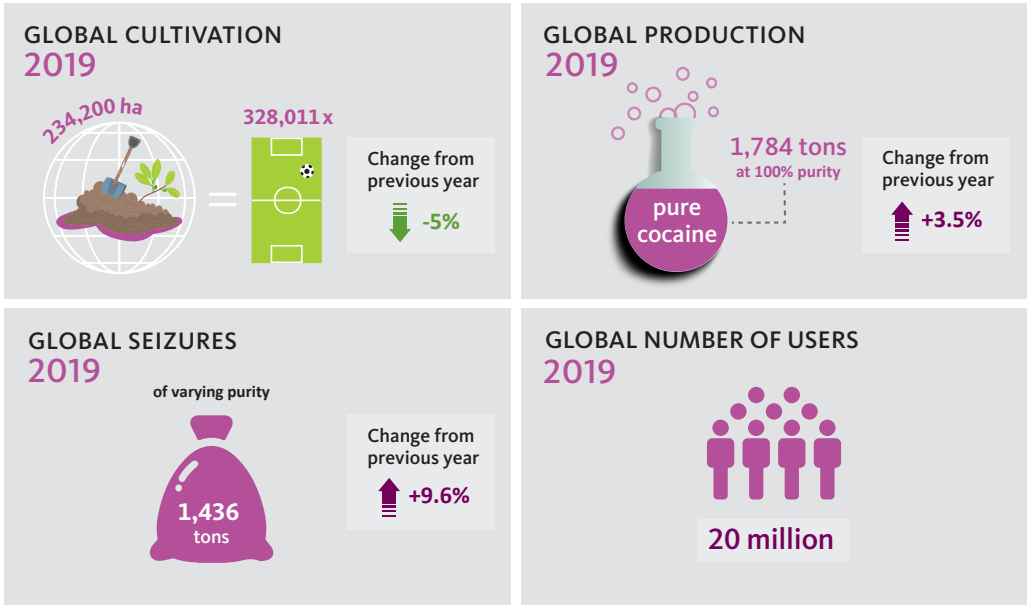
Cocaine supply

Cultivation of coca bush and manufacture of cocaine

Cocaine manufacture reached record levels in 2019 despite growth losing momentum

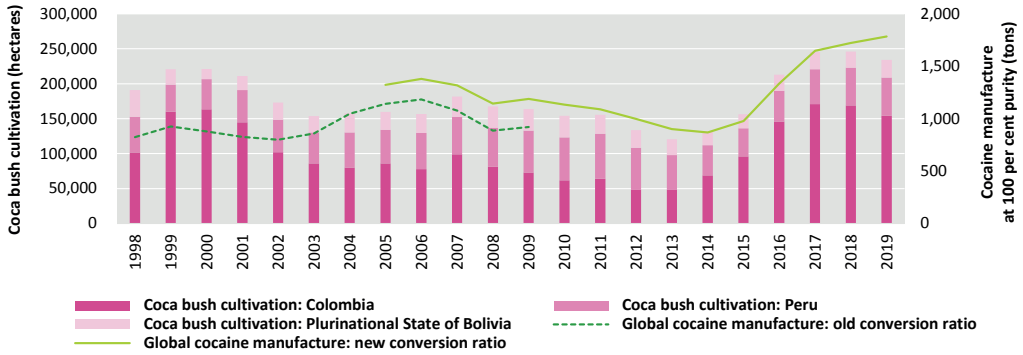
The output of global cocaine manufacture doubled between 2014 and 2019 to reach an estimated 1,784 tons (expressed at 100 per cent purity) in 2019, the highest level ever recorded.

At the same time, growth in the output of cocaine manufacture has been slowing, pointing to a trend towards stabilization. Compared with the year prior, global cocaine manufacture increased by 37 per cent in 2016, 23 per cent in 2017, 5 per cent in 2018 and 3.5 per cent in 2019.[1] The trend towards stabilization has mainly been the result of changes in coca bush cultivation, despite ongoing increases in productivity (yield per hectare).



1 UNODC estimates based on: UNODC and Colombia, *Colombia: Monitoreo de Territorios Afectados por Cultivos Ilícitos 2019* (Bogotá, Sistema Integrado de Monitoreo de Cultivos Ilícitos, 2020); UNODC and Plurinational State of Bolivia, *Estado Plurinacional de Bolivia: Monitoreo de Cultivos de Coca 2019* (2020); and Peru, Sistema de Información de Lucha contra las Drogas, and others, "Monitoreo de la superficie cultivada con arbusto de hoja de coca en producción: Perú–2019", Report, No. 2 (November 2020).

FIG. 1 Global coca bush cultivation and cocaine manufacture, 1998–2019



Sources: UNODC, coca bush cultivation surveys in Bolivia (Plurinational State of), Colombia and Peru, 2019 and previous years; and United States of America, Department of State, Bureau for International Narcotics and Law Enforcement Affairs, *International Narcotics Control Strategy Report*, various years.

Following years of increase, coca bush cultivation decreased in 2019

Following a massive upward trend over the period 2013–2017, during which the area under coca bush cultivation more than doubled, the size of the area under coca bush cultivation stabilized in 2018 and then decreased – for the first time in years – by 5 per cent in 2019. This was mainly the result of a decrease reported by Colombia (9 per cent); the area under coca bush cultivation remained stable in Peru and increased in the Plurinational State of Bolivia (by 10 per cent). In 2019, Colombia continued to account for the vast majority of the global area under coca bush cultivation (two thirds), Peru accounted for just under a quarter and the Plurinational State of Bolivia accounted for 11 per cent.[2]

In 2020, despite some disruptions in the cocaine manufacture supply chain at the beginning of the COVID-19 pandemic, it did not seem that coca bush cultivation in any of the three countries was significantly affected by the restrictions implemented in response to the pandemic.[3]

2 UNODC estimates based on: UNODC and Colombia, *Colombia: Monitoreo de Territorios Afectados por Cultivos Ilícitos 2019*; UNODC and Plurinational State of Bolivia, *Estado Plurinacional de Bolivia: Monitoreo de Cultivos de Coca 2019*; and Peru, Sistema de Información de Lucha contra las Drogas, and others, "Monitoreo de la superficie cultivada con arbusto de hoja de coca en producción: Perú–2019".

3 See booklet 5, *COVID-19 and Drugs: Impact and Outlook*, of the present report.

Coca bush cultivation has decreased in most parts of Colombia and is becoming increasingly concentrated

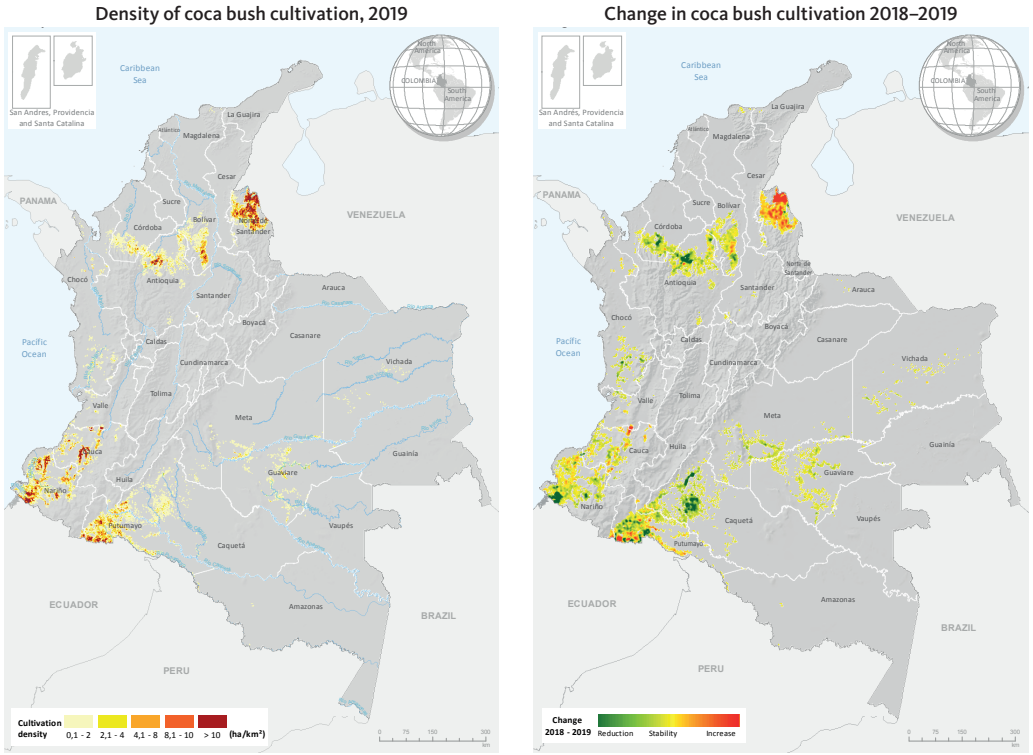
The overall area under coca bush cultivation in Colombia decreased by 1 per cent in 2018 and by 9 per cent in 2019 compared with the previous year, with decreases observed in all the main coca bush-cultivating regions of the country other than Catatumbo (Departments of Norte de Santander and Cesar), which borders the Bolivarian Republic of Venezuela.[4]

In 2019, coca bush cultivation was found in 22 of the 32 departments in Colombia; of those, 17 reported decreases in the area under cultivation compared with the previous year and 5 reported increases. The increases were minimal in most cases, except for Norte de Santander, the department with the largest area under coca bush cultivation in 2019, where the increase was 24 per cent. Nonetheless, most of the coca bush cultivation in Colombia continues to take place in the south of the country, where the Departments of (in order of the size of the area under coca bush cultivation) Nariño, Putumayo, Cauca and Caquetá accounted for 54 per cent of the total area under coca bush cultivation. The size of the area under coca bush cultivation decreased, however, in most of the country's southern departments in 2019.[5]

4 UNODC and Colombia, *Colombia: Monitoreo de Territorios Afectados por Cultivos Ilícitos 2019*.

5 Ibid.

MAP 1 Coca bush cultivation in Colombia in 2019 and change from 2018



Source: UNODC and Colombia, *Colombia: Monitoreo de Territorios Afectados por Cultivos Ilícitos 2019* (Bogotá, Sistema Integrado de Monitoreo de Cultivos Ilícitos, 2020).

The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by the United Nations.

At the same time, coca bush cultivation is becoming increasingly concentrated in Colombia: two thirds of coca bush cultivation took place on just 5 per cent of the territory affected by such cultivation in Colombia in 2019, up from 62 per cent in 2018.[6]

The overall decrease in coca bush cultivation, going hand in hand with a concentration of such cultivation, is likely the result of a number of factors. Beyond a steep increase in manual eradication since 2017, which in 2019 reached a level almost as high as that seen at its peak, in 2008, the decrease in cultivation has also been linked to successes in alternative development efforts. While in territories where no intervention was recorded the overall area under cultivation declined by 2 per cent in 2019, the overall decline as compared to a year earlier amounted to 22 percent in areas where an intervention with regard to eradication and/or alternative development took place in 2019.[7]

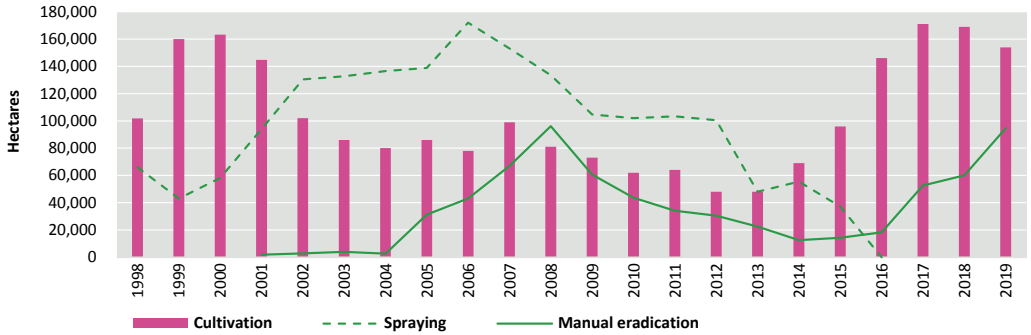
Despite a decrease in coca bush cultivation, greater productivity has seen cocaine manufacture in Colombia increase slightly

Despite a decrease of 9 per cent in the overall area under coca bush cultivation in Colombia from 2018 to 2019, the "productive" area under coca bush cultivation remained more or less stable in 2019, as previously sown fields

6 Ibid.

7 Ibid.

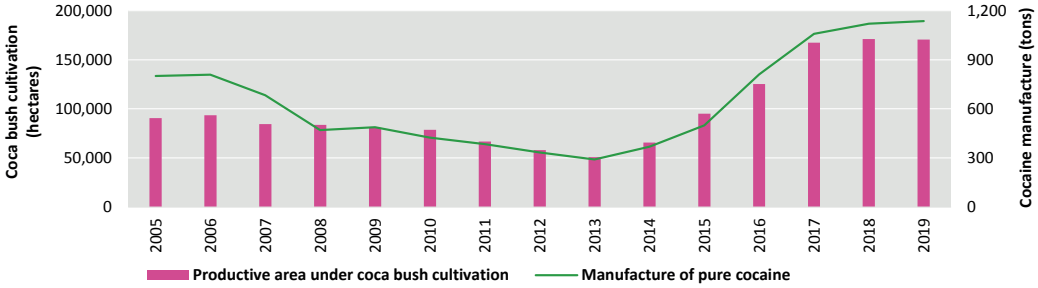
FIG. 2 Areas under coca bush cultivation, sprayed and manually eradicated in Colombia, 1998–2019



Source: UNODC and Colombia, *Colombia: Monitoreo de Territorios Afectados por Cultivos Ilícitos 2019* (Bogotá, Sistema Integrado de Monitoreo de Cultivos Ilícitos, 2020), and previous years.

Note: Cultivation figures shown here refer to the area under cultivation of the coca bush as at 31 December of each year. Areas eradicated after survey photos were taken during the year are subtracted from the cultivation figures.

FIG. 3 "Productive areas" under coca bush cultivation and manufacture of cocaine in Colombia, 2005–2019



Source: UNODC and Colombia, *Colombia: Monitoreo de Territorios Afectados por Cultivos Ilícitos 2019* (Bogotá, Sistema Integrado de Monitoreo de Cultivos Ilícitos, 2020).

became productive in 2019. At the same time, the concentration of coca bush cultivation in areas where yields are higher than in others meant that overall coca leaf yield continued to increase (from 4.7 tons per hectare in 2014 to 5.8 tons in 2018 and 5.9 tons in 2019). This resulted in an increase in coca leaf production, despite a decrease in the area cultivated, and thus in a small increase in the cocaine manufactured in Colombia (1.5 per cent in 2019). Overall, productivity continued to increase, from an average of 6.3 kg of cocaine hydrochloride per harvested hectare in 2014 to 6.5 kg in 2018[8] and 6.7 kg in 2019;[9] this also reflects ongoing improvements in the efficiency of cocaine-manufacturing laboratories.

Coca bush cultivation in Peru has stabilized

With 54,700 ha under cultivation reported by the Peruvian authorities,[10] Peru accounted for 23 per cent of global coca bush cultivation in 2019.

8 UNODC and Colombia, *Colombia: Monitoreo de Territorios Afectados por Cultivitos Ilícitos 2018* (Bogotá, Sistema Integrado de Monitoreo de Cultivos Ilícitos, 2019).

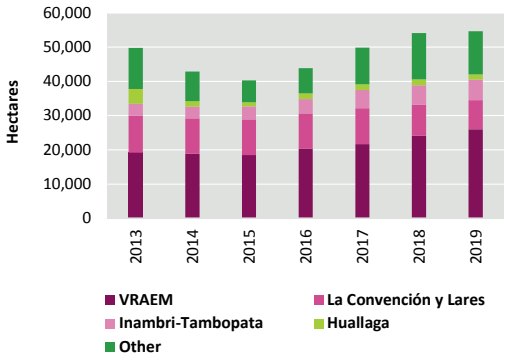
9 UNODC and Colombia, *Colombia: Monitoreo de Territorios Afectados por Cultivos Ilícitos 2019*.

10 Peru, Sistema de Información de Lucha contra las Drogas and others, "Monitoreo de la superficie cultivada con arbusto de hoja de coca en producción".

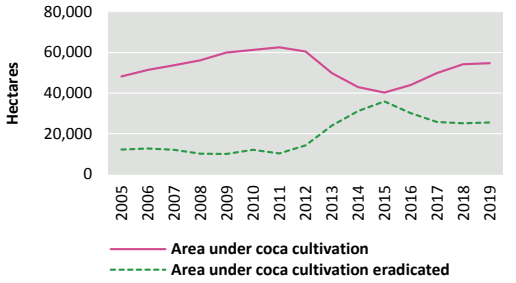
MAP 2 Area under coca bush cultivation, Peru, 2019

Density of coca bush cultivation, 2019

Coca bush cultivation, by region, 2013–2019



Coca bush cultivation and eradication, 2005–2019



Source: Peru, Sistema de Información de Lucha contra las Drogas, and others, "Monitoreo de la superficie cultivada con arbusto de hoja de coca en producción: Perú–2019", Report, No. 2 (November 2020).

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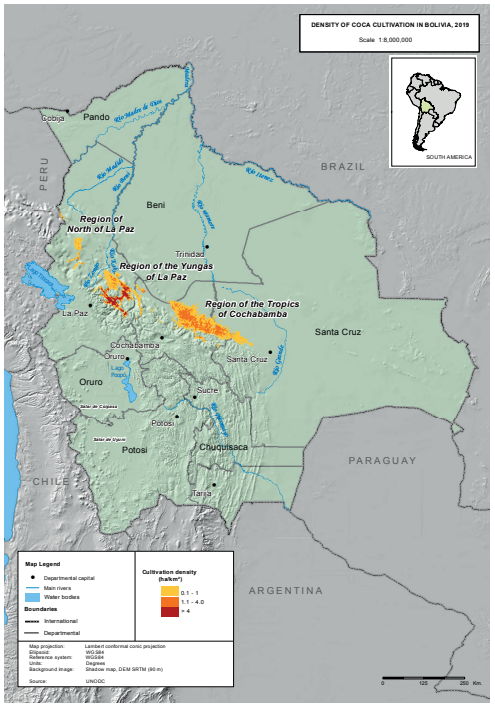
After a long-term decrease in coca bush cultivation in Peru throughout the 1990s and a resurgence in the early 2000s, the area under coca bush cultivation in the country fluctuated between 40,000 ha and 60,000 ha in the 2010s. Since 2015, coca bush cultivation and potential production output have undergone moderate year-on-year increases, although the area under coca bush cultivation in Peru stabilized in 2019, growing by just 1 per cent compared with the previous year. Inverse trends have been observed over time between the area under cultivation and eradication, although a stabilization of both cultivation and eradication was reported in 2019.

Most of the areas under coca bush cultivation in Peru continued to be found in the valley of the rivers Apurímac, Ene and Mantaro (VRAEM), followed by La Convención y Lares and Inambari-Tambopata. While the area under coca bush cultivation in VRAEM and in Inambri-Tambopata continued to grow after 2013, coca bush cultivation decreased in La Convención y Lares as well as in the traditional coca-producing region of Huallaga, which only accounted for 3 per cent of the national total in 2019.[11]

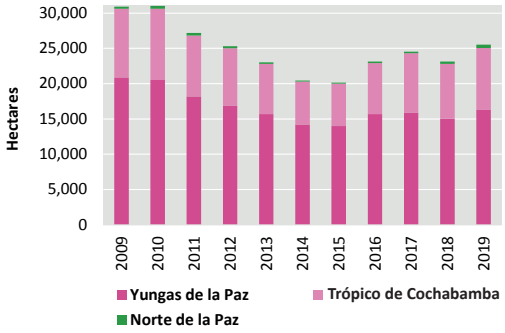
11 Ibid.

MAP 3 Area under coca bush cultivation, Plurinational State of Bolivia, 2019

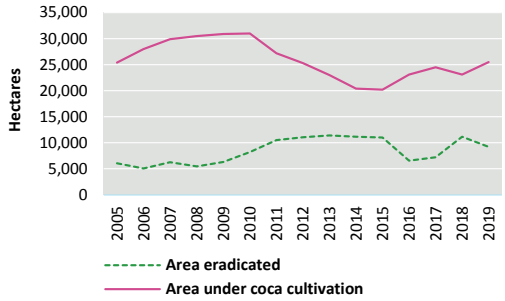
Density of coca bush cultivation, 2019



Coca bush cultivation, by region, 2009–2019



Coca bush cultivation and eradication, 2005–2019



Source: UNODC and Plurinational State of Bolivia, *Estado Plurinacional de Bolivia: Monitoreo de Cultivos de Coca 2019* (2020), and previous years.

The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by the United Nations.

Coca bush cultivation in the Plurinational State of Bolivia increased in 2019

Following a decrease of 6 per cent in the area under coca bush cultivation in the Plurinational State of Bolivia in 2018, it grew by 10 per cent in 2019 to reach 25,500 ha.[12]

Similar to the situation in neighbouring Peru, there has been an inverse trend in the area under coca bush cultivation and eradication in the Plurinational State of Bolivia. While rationalization[13] and eradication decreased by some 2,000 ha in 2019, the area under coca bush cultivation grew by some 2,400 ha. In parallel, the control exercised by coca farmers' unions over their members, which limits the area under coca bush cultivation to 1 cato (1,600 m^2) per family, also appears to have dwindled in 2019.

Some coca bush cultivation took place in areas that had been deforested in the previous year, posing a particular challenge to the country's forest ecosystem, especially in protected areas such as the national parks of Madidi and Amboró.[14] Nevertheless, with 64 per cent of the coca

12 UNODC and Plurinational State of Bolivia, *Estado Plurinacional de Bolivia: Monitoreo de Cultivos de Coca 2019*, and previous years.

13 "Rationalization" refers to the process of eradicating coca bush cultivation that exceeds the agreed limit of 1 cato (1,600 m^2) per family in the coca bush-growing areas of the Plurinational State of Bolivia. In protected areas, such as national parks, all identified coca bushes are eradicated.

14 UNODC and Plurinational State of Bolivia, *Estado Plurinacional de Bolivia: Monitoreo de Cultivos de Coca 2019*, and previous years.

bush cultivated in the traditional coca-producing area of Yungas de La Paz, this region continued to account for the most coca bush cultivation in 2019. This was followed by Trópico de Cochabamba (34 per cent) and, to a much lesser extent, Norte de La Paz (2 per cent). Increases in cultivation from 2018 to 2019 were reported in all three regions.[15]

Quantities of cocaine seized reached record levels in 2019

In 2019, the global quantity of cocaine seized increased by 9.6 per cent compared with the preceding year to reach 1,436 tons (of varying purities), a record high. The 90 per cent increase in the quantities of cocaine seized between 2009 and 2019 is likely a reflection of a combination of factors, including an increase in cocaine manufacture (50 per cent between 2009 and 2019) and a subsequent increase in cocaine trafficking, as well as an increase in the efficiency of law enforcement, which may have contributed to an increase in the overall interception rate.

South America continues to account for the bulk of cocaine seized

Among the 15 countries reporting the largest quantities of cocaine seized in 2019, 10 were located in the Americas, 4 in Western and Central Europe and 1 in Asia.

The bulk of the cocaine seized worldwide continues to be seized in the Americas, which accounted for 83 per cent of the global quantity intercepted in 2019, the majority being seized in South America. The total quantity of cocaine seized in South America increased by 5 per cent between 2018 and 2019, to 755 tons, a record high, with most countries in the subregion, including Bolivia (Plurinational State of), Brazil, Colombia and Peru, reporting increases.

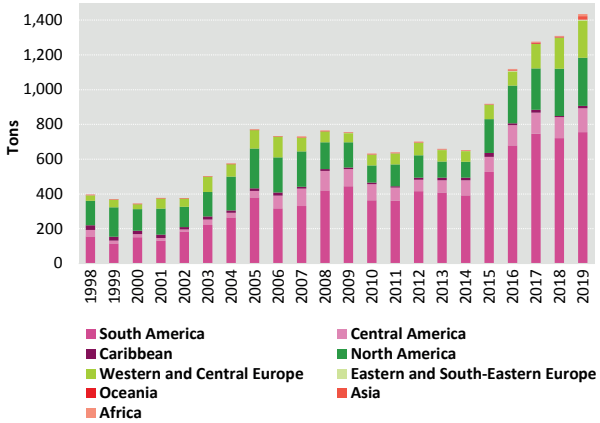
Transformation of cocaine base to cocaine end product (cocaine hydrochloride) increasingly taking place outside the main countries of coca bush cultivation

Most cocaine continues to be trafficked in the form of cocaine hydrochloride, the final product. Nonetheless, there are indications of a trend in the trafficking of intermediary products, most notably cocaine base,[16] from

15 Ibid.

16 UNODC, responses to the annual report questionnaire.

FIG. 4 **Global quantities of cocaine seized, by region, 1998–2019**



Source: UNODC, responses to the annual report questionnaire.

Note: Includes seizures of cocaine hydrochloride, coca paste and base and "crack" cocaine.

Colombia[17] to other countries in South America,[18] Central America,[19, 20] the Caribbean[21] and, according to media sources, Europe,[22, 23] suggesting that the final steps in the manufacturing of cocaine hydrochloride are increasingly taking place outside Colombia. The quantities of coca paste and cocaine base seized in South America, Central America, the Caribbean and Europe, although still smaller, also increased far more than those of cocaine hydrochloride from 2018 to 2019.

Analysis of dismantled coca/cocaine production sites (including laboratories manufacturing cocaine) confirms these patterns. Excluding the three Andean countries in which most coca leaf is produced, there has been an increase in the number of countries reporting coca/cocaine-related processing, from 12 in the period

17 Ibid.

18 Tristan Clavel, "Dismantled Chile cocaine lab with Bolivia ties hints at evolving crime dynamics", InSight Crime, 20 March 2017.

19 Héctor Silva Ávalos, "Honduras goes from transit nation to cocaine producer", InSight Crime, 19 March 2020.

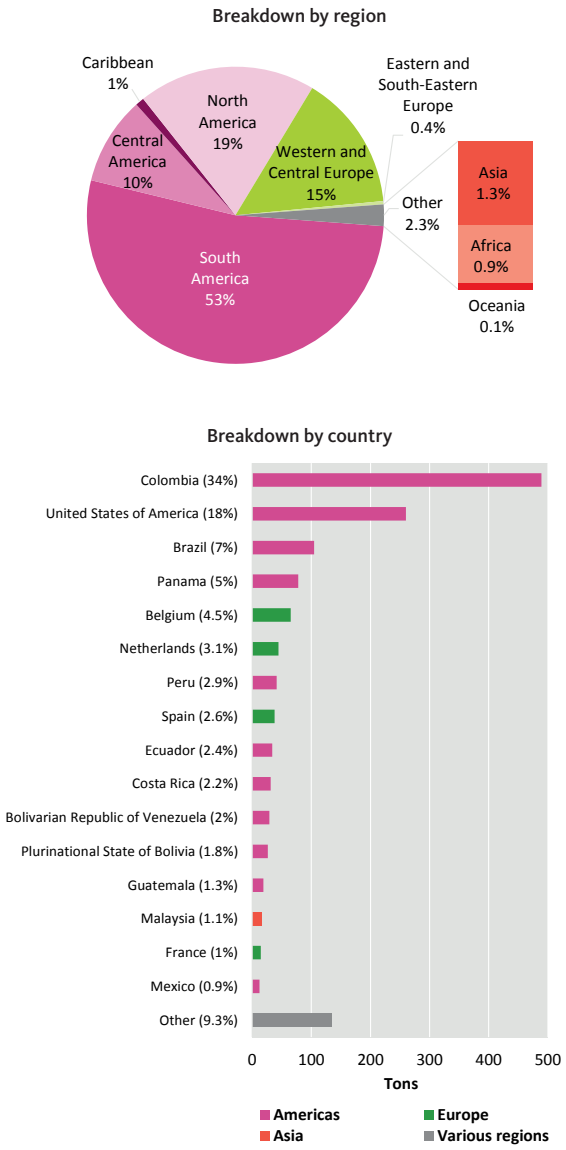
20 Loren Riesenfeld and Elyssa Pachico, "Colombia narcos prefer trafficking coca base, not cocaine", InSight Crime, 4 February 2015.

21 Charles Parkinson, "'Biggest Caribbean drug lab' busted in Dominican Republic", InSight Crime, 2 September 2013.

22 Luis Izquierdo, "Desmantelada la principal red española de fabricación de cocaína", *La Vanguardia* (Barcelona, Spain), 29 May 2019.

23 *El Heraldo*, "Desmantelan en España laboratorio de cocaína de disidentes de las Farc" (Bogotá), 3 December 2019.

FIG. 5 Global quantity of cocaine seized, 2019



Source: UNODC, responses to the annual report questionnaire.

Note: Based on a total amount seized of 1,436 tons, including cocaine hydrochloride, coca paste and base and "crack" cocaine.

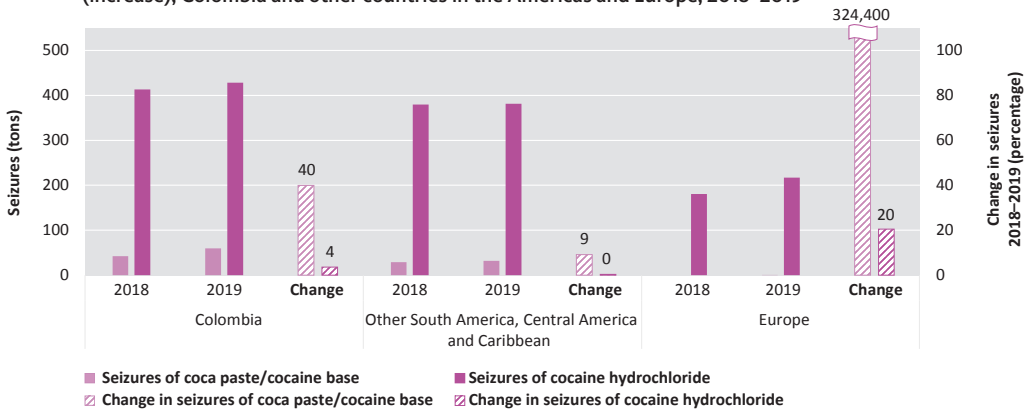
2010–2014 to 19 in the period 2015–2019, as well as in the number of dismantled coca/cocaine production sites, from an average of 64 per year in the period 2011–2014 to 93 in the period 2015–2019; such sites were detected not only in South America (Argentina, Brazil, Chile, Ecuador and Venezuela (Bolivarian Republic of)) and Central America (El Salvador, Guatemala and Honduras) but also in North America, Europe, Asia and Oceania.

Nonetheless, most coca/cocaine production sites continued to be reported in the three Andean countries (on average, 9,414 sites or laboratories per year in the period 2015–2019). Most of them were involved in the production of coca paste or cocaine base; the number of dismantled laboratories manufacturing cocaine hydrochloride amounted to an annual average of 354 in the period 2015–2019.

However, while the number of coca/cocaine production sites dismantled in the Andean countries fell by more than 50 per cent between 2016 and 2019, the number of sites dismantled elsewhere doubled over the same period. Similarly, if only the number of laboratories manufacturing cocaine hydrochloride is considered, data from countries outside the Andean region show a doubling over the period 2016–2019, to 110 laboratories dismantled in 2019. The number of dismantled laboratories manufacturing cocaine in the Andean countries also increased, to 417 between 2016 and 2019, although the figure remained 20 per cent lower than in 2015.

Although most of the laboratories dismantled outside the Andean region seem to have been used for the secondary extraction of cocaine from the material in which it was incorporated for trafficking purposes, some have also been used to complete the final stages of cocaine hydrochloride manufacture; in a number of cases, the laboratories were used for both purposes. For example, the largest cocaine-manufacturing laboratory ever identified in the Netherlands was dismantled in a former horse riding facility in Nijeveen, a village in the north of the country, in August 2020. The laboratory, which had been converting cocaine base into cocaine hydrochloride using clothing impregnated with cocaine base, had the capacity to produce 150 kg to 200 kg of cocaine hydrochloride per day, which is a very large quantity by international standards. The discovery of the laboratory led to the arrest of 17 people (13 Colombian citizens, 3 Dutch citizens and 1 Turkish citizen), which underlines

FIG. 6 Quantities of cocaine hydrochloride and of coca paste and cocaine base seized and relative change (increase), Colombia and other countries in the Americas and Europe, 2018–2019



Source: UNODC, responses to the annual report questionnaire.

the international dimension of cocaine-manufacturing activities taking place outside of the Andean region.[24]

Quantities of cocaine seized increased in all sub-regions in the Americas, including North America, the world's largest cocaine market

North America, in particular the United States, remains the main final destination of cocaine smuggled from the Andean countries. In 2019, the quantity of cocaine seized in North America rose by 2 per cent, to 277 tons, a record high. The United States continued to account for the vast majority (94 per cent) of the cocaine seized in North America. Nonetheless, the importance of the United States as the world's largest cocaine market may be decreasing compared with a few decades ago: the share of the quantities of cocaine seized in the United States decreased from 49 per cent of the global total in 1989 to 36 per cent in 1999 and 18 per cent in 2019.

In Central America, the quantity of cocaine seized rose by 19 per cent, to 144 tons in 2019. More than half of the total quantity seized in the subregion was seized by Panama, which also accounted for 5 per cent of the global total. This was followed by Costa Rica (2 per cent of the global total) and Guatemala (1 per cent of the global total).

24 ANP/Redactie, "Grootste cocaïnewasserij ooit in Nederland ontmanteld", *Trouw*, 11 August 2020.

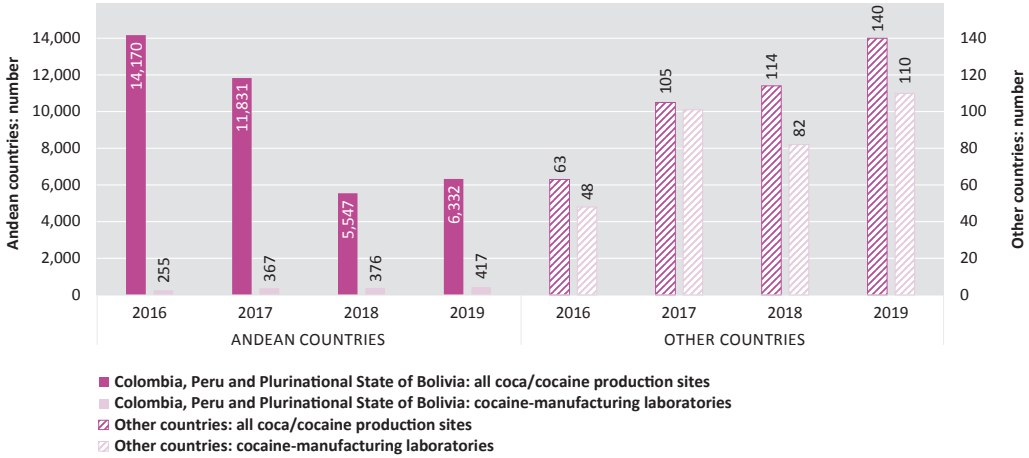
The quantity of cocaine seized by countries in the Caribbean more than doubled in 2019 to reach 14 tons (1 per cent of the global total). The largest quantities were seized, once again, by the Dominican Republic (0.7 per cent of the global total), followed by Jamaica and the Bahamas.

Sharp increase in the quantity of cocaine seized in Europe, with Western and Central Europe remaining the second largest destination market for cocaine worldwide

In 2019, Europe continued to account for the largest quantity of cocaine seized outside the Americas. The largest quantities intercepted in the region were reported by countries in Western and Central Europe, in particular Belgium (5 per cent of the global total), followed by, the Netherlands and Spain (3 per cent each) and France and Portugal (1 per cent each). Western and Central Europe accounted for slightly more than 97 per cent of all the cocaine intercepted in Europe in 2019, followed by South-Eastern Europe (about 2 per cent) and Eastern Europe (less than 1 per cent), where synthetic stimulants such as amphetamines and cathinones are more popular than cocaine.

Seizures indicate that cocaine trafficking to and across Europe has been increasing. The total quantity of cocaine seized in the region in 2019 increased by more than 20

FIG. 7 Number of coca/cocaine production sites, among which cocaine-manufacturing laboratories, dismantled in Andean countries and outside the Andean region, 2016–2019



Source: UNODC, responses to the annual report questionnaire.

per cent, to 218 tons, a record high. An increase was observed in each of the subregions: 20 per cent in Western and Central Europe, to 213 tons; 64 per cent in South-Eastern Europe, to 3.8 tons; and an even larger increase in Eastern Europe, from 50 kg in 2018 to 1.4 tons in 2019.

Quantity of cocaine seized in Asia suggests that the relatively small cocaine market in the region continues to expand

For many years, the largest quantities of cocaine seized worldwide after the Americas and Europe were reported by countries in Africa. In 2019, however, for the second year in a row, the next largest quantities of cocaine seized were reported by countries in Asia, which accounted for 19 tons of cocaine seized, a record high and 1.3 per cent of the global total. The quantity of cocaine seized in Asia quintupled from 2018 to 2019 and was – starting from a very low base – 28 times larger than the quantity seized a decade prior to that. The largest increase from 2018 to 2019 was reported in East and South-East Asia (sevenfold increase) although the quantities of cocaine seized also increased in most other subregions.

Cocaine seizures in Africa show that the transit of the drug through the region may have increased

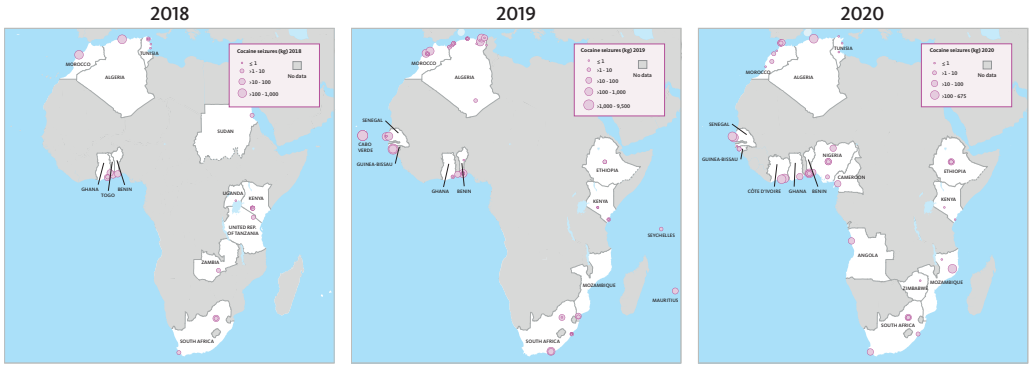
The quantity of cocaine seized in Africa almost quadrupled from 2018 to 2019 and increased eightfold compared with 2009, to reach close to 13 tons, a record high (0.9 per cent of the global total). Around 11.1 tons, or some 86 per cent of the cocaine seized in Africa in 2019, was reported by countries in West and Central Africa, in particular Cabo Verde (11 tons), followed by countries in North Africa (1.8 tons or 14 per cent of the African total), in particular Morocco (1.5 tons). Far less was seized by countries in Southern Africa (0.2 per cent of the African total) and East Africa (0.05 per cent).

Overall, the quantities of cocaine seized in Africa were likely to have been larger in 2019 than those reported by Member States to UNODC. Although a number of African countries did not provide annual seizure data,[25] individual drug seizures,[26] information on many of which are collated from media reports, point to significantly larger quantities of cocaine seized in 2019, potentially increasing the total quantity seized in Africa in 2019 to over 17 tons. The

25 UNODC received seizure information in the annual report questionnaire from 17 of the 54 Member States in Africa.

26 UNODC, Drugs Monitoring Platform.

MAP 4 Significant individual seizures of cocaine, Africa, 2018–2020



Source: UNODC, Drugs Monitoring Platform.

The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by the United Nations.

largest portion of the cocaine seized was destined for Europe.

Cocaine trafficking via Africa, most notably via West Africa, continued in 2020, although apparently not to the record extent seen in 2019. Individual cocaine seizures totalling several hundred kilograms were reported by Côte d'Ivoire (991 kg), Senegal (796 kg) and Benin (601 kg) in 2020.[27]

Oceania saw an increase in the quantity of cocaine seized over the last decade, albeit a decrease in recent years

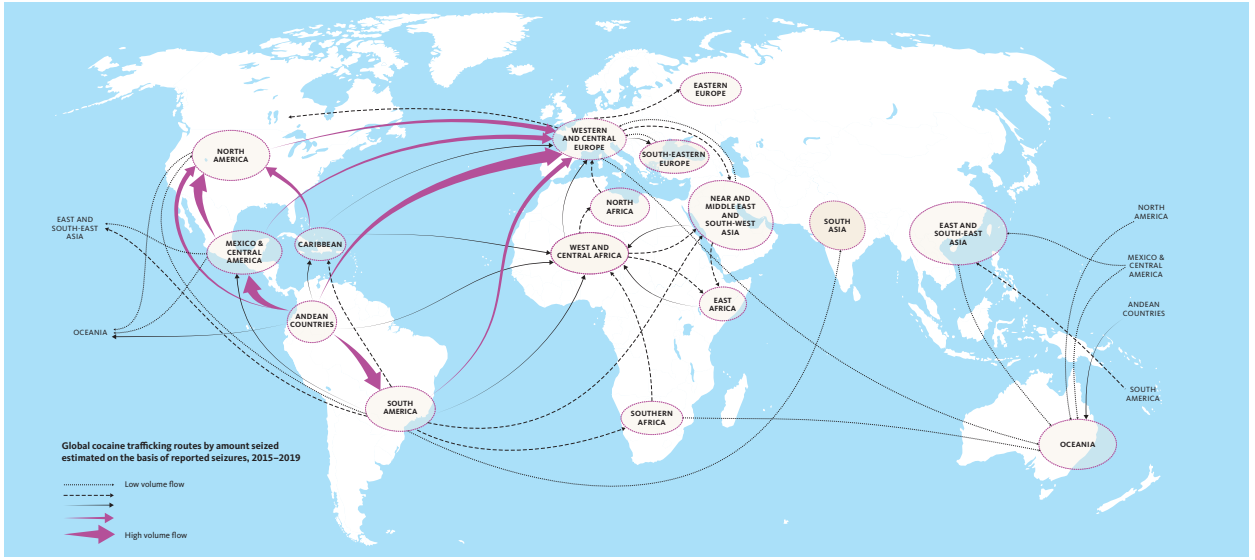
The quantity of cocaine seized in Oceania in 2019 was five times larger than that seized in 2009. Nonetheless, in contrast to the situation in other regions, the amount of cocaine seized in Oceania has decreased in recent years, from 4.3 tons in 2017 to 2.1 tons in 2018 and 1.5 tons in 2019, the equivalent of 0.1 per cent of global seizures; decreases have been reported by both Australia and New Zealand.

Australia accounted for almost 95 per cent of the quantity of cocaine seized in Oceania in 2019 and New Zealand for the remainder; no cocaine seizures were reported by other countries in the region in 2019.[28] By contrast, in July 2020, 500 kg of cocaine were seized in Papua New Guinea from a Melbourne-based criminal syndicate with links to Italian organized crime groups, which had been planning to ship the drugs to Australia.[29] In September 2018, 500 kg of cocaine were seized in Solomon Islands with destination Australia.[30] Moreover, in July 2017, 1.4 tons of cocaine were seized on a vessel off the coast of New Caledonia,[31] and, in February 2017, 1.4 tons of cocaine were seized in the Pacific from a vessel with crew members from Fiji and New Zealand.[32]

The decreases in the quantities of cocaine seized in recent years in Australia are, however, challenging to interpret, as there are contradictory trends in indicators that define the dynamics of the Australian cocaine market. National household surveys point to a clear increase in the number of users of cocaine in the past year, rising from 2.6 per cent of the Australian population aged 14 and older in 2016 to 4.2 per cent in 2019.[33] In parallel, wastewater analysis indicates a marked increase in cocaine consumption, from 3.1 tons in the fiscal year 2016/17 to 4.1 tons in 2017/18, 4.6 tons in 2018/19 and 5.7 tons in 2019/20.[34] The decrease in the quantities of cocaine seized by the Australian authorities, however, may have to be seen in

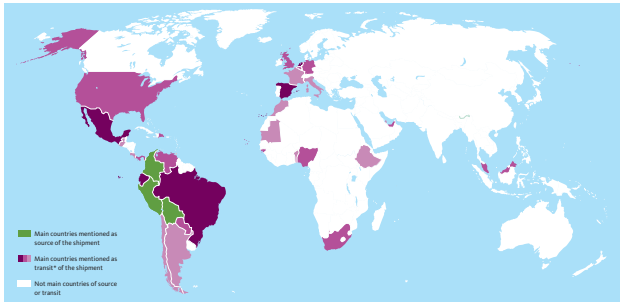
27 Ibid.
28 UNODC, responses to the annual report questionnaire.
29 UNODC, Drugs Monitoring Platform.
30 Ibid.
31 Ibid.
32 Ibid.
33 Australian Institute of Health and Welfare, *National Drug Strategy Household Survey 2019* (Canberra, 2020).
34 Australian Criminal Intelligence Commission, University of Queensland and University of South Australia, *National Wastewater Drug Monitoring Program: Report 12* (Canberra, February 2021).

MAP 5 Main cocaine trafficking flows, as described by reported seizures, 2015–2019



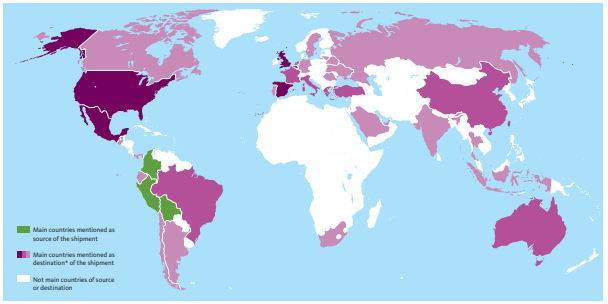
The size of the route is based on the total amount seized on that route, according to the information on trafficking routes provided by Member States in the annual report questionnaire, individual drug seizures and other official documents, over the 2015–2019 period. The routes are determined on the basis of reported country of departure/transit and destination in these sources. As such, they need to be considered as broadly indicative of existing trafficking routes while several secondary routes may not be reflected. Route arrows represent the direction of trafficking: origins of the arrows indicate either the area of departure or the one of last provenance, end points of arrows indicate either the area of consumption or the one of next destination of trafficking. Therefore, the trafficking origin may not reflect the country in which the substance was produced.

MAP 6 Main countries identified as source and transit locations of cocaine shipments, as described by reported seizures, 2015–2019



A darker shade indicates a larger amount of cocaine being seized with the country as source/transit of the shipment, according to the information on trafficking routes provided by Member States in the annual report questionnaire, individual drug seizures and other official documents, over the 2015–2019 period. The source may not reflect the country in which the substance was produced. The main countries mentioned as source or transit were identified on the basis of both the number of times they were identified by other Member States as departure/transit of seizures, and the annual average amount that these seizures represent during the 2015–2019 period.

MAP 7 Main countries identified as source and destination of cocaine shipments, as described by reported seizures, 2015–2019



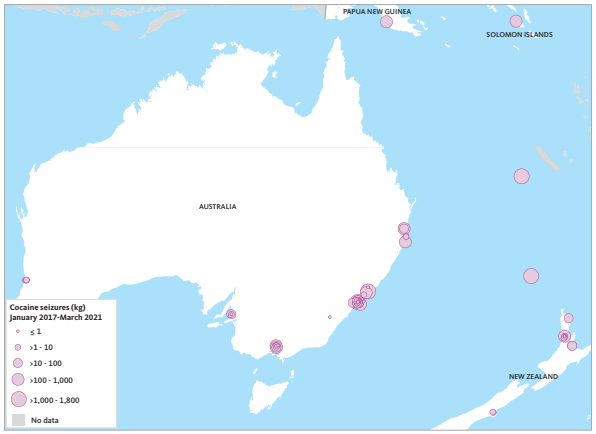
A darker shade indicates a larger amount of cocaine being seized with the country as source/destination of the shipment, according to the information on trafficking routes provided by Member States in the annual report questionnaire, individual drug seizures and other official documents, over the 2015–2019 period. The source may not reflect the country in which the substance was produced. The main countries mentioned as source or destination were identified on the basis of both the number of times they were identified by other Member States as departure or destination of seizures, and the annual average amount that these seizures represent during the 2015–2019 period.

Source: UNODC elaboration.

Note: See the online methodological annex to the present report for more details.

The boundaries and names shown and the designations used on these maps do not imply official endorsement or acceptance by the United Nations. A dispute exists between the Governments of Argentina and the United Kingdom of Great Britain and Northern Ireland concerning sovereignty over the Falkland Islands (Malvinas). The dotted line represents approximately the Line of Control in Jammu and Kashmir agreed upon by India and Pakistan. The final status of Jammu and Kashmir has not yet been agreed upon by the parties.

MAP 8 **Significant individual cocaine seizures in Oceania, January 2017–March 2021**



Source: UNODC, Drugs Monitoring Platform.

The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by the United Nations.

the context of the massive increase in the quantities of cocaine seized en route to Oceania, most notably some major seizures totalling more than 15 tons made by the authorities in Malaysia in 2019,[35] of which two thirds were destined for Australia.[36] This suggests that, overall, the quantities of cocaine seized by the Australian authorities taken together with those seized by law enforcement entities of other countries on the way to Australia actually increased in recent years.

At the same time, other indicators changed only slightly, often in opposite directions. Cocaine prices in Australia decreased slightly in the fiscal year 2018/19, suggesting a small increase in the availability of cocaine, while the median purity of cocaine decreased slightly, suggesting a small decrease in the availability of the drug. The proportion of injecting drug users reporting that cocaine was "easy" or "very easy" to obtain decreased slightly (from 64 per cent in 2018 to 62 per cent in 2019), suggesting a slight decrease or a stabilization in the availability of cocaine. However, information obtained from regular users of "ecstasy" and other stimulants points in the opposite direction, with those reporting that it was "easy" or "very easy" to obtain cocaine increasing, from 62 per cent in 2018 to 69 per cent in 2019, which suggests an increase in availability of the drug.[37]

In any case, preliminary data based on individual drug seizures indicate a marked increase in the quantity of cocaine seized in 2020, to a minimum of 5 tons. This includes more than 3 tons seized in Australia,[38] most of which was seized in New South Wales, the main entry point of cocaine into Australia.[39]

Cocaine trafficking

Cocaine trafficking to North America continues to increase

In the Americas, the primary cocaine trafficking flow continues to be from Colombia to North America, in particular the United States. Analysis of cocaine seizure samples in the United States suggests that, in 2019, 87 per cent of that cocaine originated in Colombia and 9 per cent in Peru.[40] Less than 1 per cent of the cocaine found on the United States market is smuggled directly; the bulk transits a number of countries before reaching the United States.[41]

According to United States authorities, cocaine trafficking to North America typically starts in the Andean countries, with cocaine mostly departing from Colombia and Ecuador via the eastern Pacific route, which is estimated to account for 74 per cent of all cocaine smuggled to North America. This is followed by the western Caribbean route (16 per cent), which starts from Colombia. The third trafficking route is the Caribbean route (along which 8 per cent of cocaine seized in North America is trafficked), which starts from both Colombia and Venezuela (Bolivarian Republic of).[42]

The quantities of cocaine seized along the drug trafficking routes from the Andean countries to North America, that is, the amount of cocaine seized in Central America, the Caribbean and North America, rose by more than 40

35 UNODC, Drugs Monitoring Platform.
36 UNODC, responses to the annual report questionnaire.
37 Australian Criminal Intelligence Commission, *Illicit Drug Data Report 2018-19* (Canberra, 2020).
38 UNODC, Drugs Monitoring Platform.
39 Australian Criminal Intelligence Commission, *Illicit Drug Data Report 2018-19*.
40 UNODC, response to the annual report questionnaire.
41 United States, Department of Justice, Drug Enforcement Administration, *2020 National Drug Threat Assessment* (March 2021).
42 Ibid.

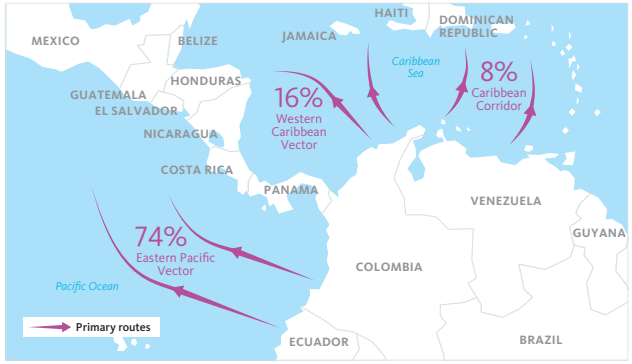
per cent over the period 2015–2019, including by 7 per cent from 2018 to 2019. The largest growth along this route was reported in Central America, where the quantities of cocaine seized increased by 60 per cent over the period 2015–2019, which is possibly a reflection of an increasing number of shipments of cocaine transiting Central America on the way to Mexico. By contrast, the quantities of cocaine seized in the Caribbean decreased between 2015 and 2018 and only partly recovered in 2019.

According to United States authorities, the eastern Pacific route, by boat, in particular go-fast vessels or semi-submersibles, and, to a lesser extent, the Atlantic routes (western Caribbean and Caribbean routes), by go-fast vessels and aircraft, remain the main cocaine trafficking routes from Colombia to the north.[43] According to reports by Member States, the bulk of cocaine trafficking via Central America takes place by sea, but recent trends in Guatemala show a decrease in the use of the sea route and an increase in air trafficking (from 4 per cent of all cocaine seized that entered Guatemala in 2017 to 20 per cent in 2018 and 30 per cent in 2019), primarily reflecting an increase in flights smuggling cocaine from the Bolivarian Republic of Venezuela to Guatemala. The Bolivarian Republic of Venezuela thus emerged as the second most important transit/departure country (25 per cent of the total) after Colombia (75 per cent) for the cocaine seized in Guatemala in 2019.[44]

According to United States authorities, the main cocaine trafficking routes, the eastern Pacific route and the western Caribbean route, converge in Mexico, from where the drug enters the United States, mostly by land across the country's south-western border. It is estimated that about 80 per cent of the cocaine found on the United States market in 2019 had transited Mexico.[45] However, amounts seized on the south-western border point to an increase in cocaine trafficking via Mexico up to 2017, after which they point to a decrease, while the overall quantities of cocaine seized in the United States continued to rise.[46] These trends suggest the emergence of alternative cocaine trafficking routes, including shipments of the drug to seaports in the United States. In fact, the largest quantities of cocaine seized in the United States in 2019 were reported in seaports in Florida, followed by

43 Ibid.
44 UNODC, responses to annual report questionnaire.
45 Ibid.
46 United States, Department of Justice, Drug Enforcement Administration, *2020 National Drug Threat Assessment*, and previous years.

MAP 9 Trafficking in cocaine from the Andean region to North America, 2019



Source: map reproduced from: United States, Department of Justice, Drug Enforcement Administration, *2020 National Drug Threat Assessment* (March 2021). Map: Cocaine movement to Mexico, Central America, and the Caribbean, 2019, based on U.S. Government database of known and suspected drug seizure and movements events.

The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by the United Nations.

California (mostly along the south-western border with Mexico), Pennsylvania and Puerto Rico.[47]

Nonetheless, Mexican criminal organizations continue to control much of the import of cocaine into the United States and wholesale cocaine trafficking within the country. For retail distribution, they rely heavily, however, on local criminal groups and street gangs. According to United States authorities, Mexican criminal groups often procure multi-ton shipments of cocaine from drug traffickers in South America, most notably Colombian criminal groups, then move the drug through Central America and Mexico before smuggling it into the United States across the south-western border. By contrast, cocaine trafficking along the Caribbean route, primarily by sea and air, involves Dominican criminal groups, among others.[48]

Patterns of cocaine trafficking into Mexico seem to have changed recently, from a situation in 2017 in which most cocaine was being smuggled by sea (mostly from Colombia) and land (from Guatemala) to a situation in 2019 in which the bulk (52 per cent) was reported to have entered the country by air.[49]

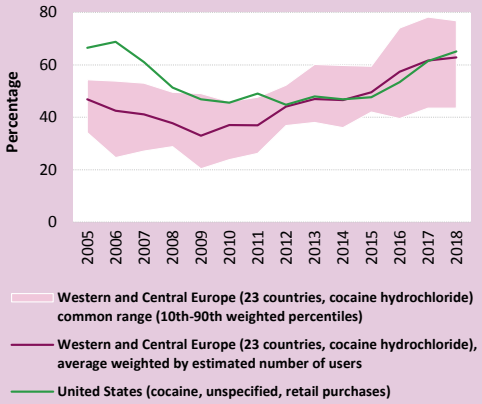
47 Ibid.
48 Ibid.
49 UNODC, responses to annual report questionnaire.

Towards a "unified" transatlantic cocaine market?

Over the past decade, trends in the retail purity of cocaine in the world's two largest cocaine markets, the United States and Europe, have started to evolve in parallel. The retail purity of cocaine decreased after 2006 in both the United States and Europe. This was mainly a reflection of a decrease in cocaine manufacture in Colombia, before increasing again after 2013, which was likely a result of an increase in cocaine manufacture in the Andean countries, most notably Colombia. While the purity of cocaine on the United States market was traditionally substantially higher than in Europe, this has changed in recent years. Since 2012, the retail purity of cocaine has been almost identical in both markets and has moved in the same upward direction.[a, b] In terms of absolute value, the purity of cocaine in Europe has caught up with cocaine purity in the United States, suggesting that the Atlantic Ocean is becoming less of a hurdle for traffickers than it used to be, at least when measured against the cocaine trafficking route from the Andean countries northward to the United States. Europe has thus become a more competitive consumer of cocaine and the fact that the trend in Europe is in parallel with the trend in the United States suggests that the cocaine market in Europe is as responsive to changes at the source as the market in the United States.

While it can be argued that this convergence is the sign of an increasingly "unified" transatlantic cocaine market, the factors behind it are likely to be numerous. They include the emergence of "new" players among the transatlantic cocaine traffickers, such as organized crime groups from countries in South-Eastern Europe, as well as collaboration between lesser actors, resulting in increased competition and therefore an increase in the efficiency of cocaine trafficking to Europe. The supply chain has also changed, with a reduction in monopolies, both in terms of the cocaine manufacture chain in South America and in terms of transatlantic cocaine trafficking, which is now seeing new actors cutting out intermediaries. It is also possible that the world's largest cocaine market, that of the United States, has reached saturation and/or that law enforcement activities along the trafficking routes to North America have contributed to the European market being considered the path of least resistance and thus led to an increase in cocaine trafficking to Europe from South America.

Trend in cocaine retail purity, United States and Western and Central Europe, 2005–2018



Sources: United States Office of National Drug Control Policy; and UNODC estimates, based on EMCDDA "Statistical bulletin 2020", and previous years.

a United States, Office of National Drug Control Policy.

b UNODC estimates for Europe based on EMCDDA, "Statistical bulletin 2020", and previous years.

Irrespective of the increase in the smuggling of cocaine by air in some countries in 2019 (notably Mexico and Guatemala), available data also suggest that most of the cocaine trafficked from the Andean countries to the United States continues to be seized at sea. This corresponds with reports showing that most cocaine seizures by United States authorities continue to be made at sea off the United States mainland. At the same time, there has been an increase in cocaine shipments by mail, which are estimated to account for 9 per cent of all cocaine imports into the United States (up from less than 5 per cent of the total in 2015),[50] possibly an indication of the increasing number of transactions made over the dark web, which usually involve shipments by mail.

50 Ibid.

Cocaine seizures in European ports continue unabated

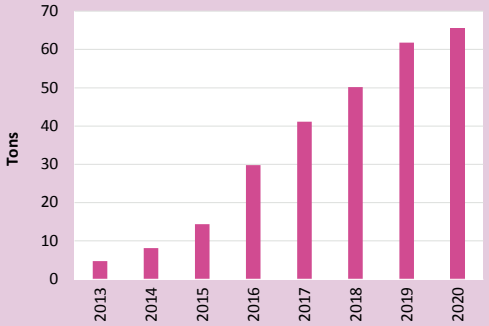
The record quantities of cocaine intercepted in Europe in recent years have been driven, to a large extent, by seized consignments that reached Europe by sea, in particular in containerized freight in seaports, although seizures are also made at sea. Very large quantities of cocaine have been seized in the seaports of Antwerp, Belgium, Rotterdam, the Netherlands, and, most recently, Hamburg, Germany, while large quantities have also been seized in Spanish and Italian seaports.[a, b]

Despite the COVID-19 pandemic, preliminary data on seizures registered by customs authorities in 12 countries in Western and Central Europe (Belgium, Denmark, Finland, Germany, Iceland, Ireland, Italy, Malta, Netherlands, Norway, Portugal and Spain) indicate that the quantities of cocaine seized in seaports increased by 18 per cent in 2020 (from 118 tons to 140 tons).[a]

The quantity of cocaine intercepted in the Port of Antwerp, in particular, has increased steadily in recent years, and has come to account for a significant share of the quantity of cocaine seized in all of Europe (28 per cent in 2019). Most of the cocaine that reaches Antwerp is most likely intended for criminal organizations operating out of the Netherlands,[c] from where the cocaine is distributed to other European destinations.

As reported by media sources,[b, d] 16 tons of cocaine shipped from Paraguay were seized at the Port of Hamburg in February 2021. An individual who was also responsible for another shipment of 7 tons seized in parallel at Antwerp was involved, which confirmed the centrality of criminal organizations based in the Netherlands with transnational connections in managing the import of cocaine into Europe.

Quantity of cocaine seized at the Port of Antwerp, Belgium, 2013–2020



Sources: Belgium, Federal Public Service, Finance (Federale Overheidsdienst Financiën); and WCO, Regional Intelligence Liaison Offices for Western Europe, Customs Enforcement Network database, from UNODC and Europol, *Cocaine Insights 1: The Illicit Trade of Cocaine from Latin America to Europe – from Oligopolies to Free-for-all?* (forthcoming).

Note: The source of the data for 2020 was distinct from that for the data for the years 2013–2019; therefore, the figure for 2020 may not be directly comparable to prior years. In particular, the figure for 2020 does not include cocaine seized in consignments of less than 100 g (if any) and thus potentially underestimates the true quantity. However, a comparison of data for 2018 and 2019 (for which data were available from both sources) suggests that any methodological discrepancies were negligible, as the variation for these two years was about 1 per cent or less.

a WCO, Regional Intelligence Liaison Offices for Western Europe, Customs Enforcement Network database.

b *Der Spiegel*, "Zoll stellt im Hamburger Hafen 16 Tonnen Kokain sicher", 24 February 2021.

c UNODC, response submitted by Belgium to the annual report questionnaire for 2019.

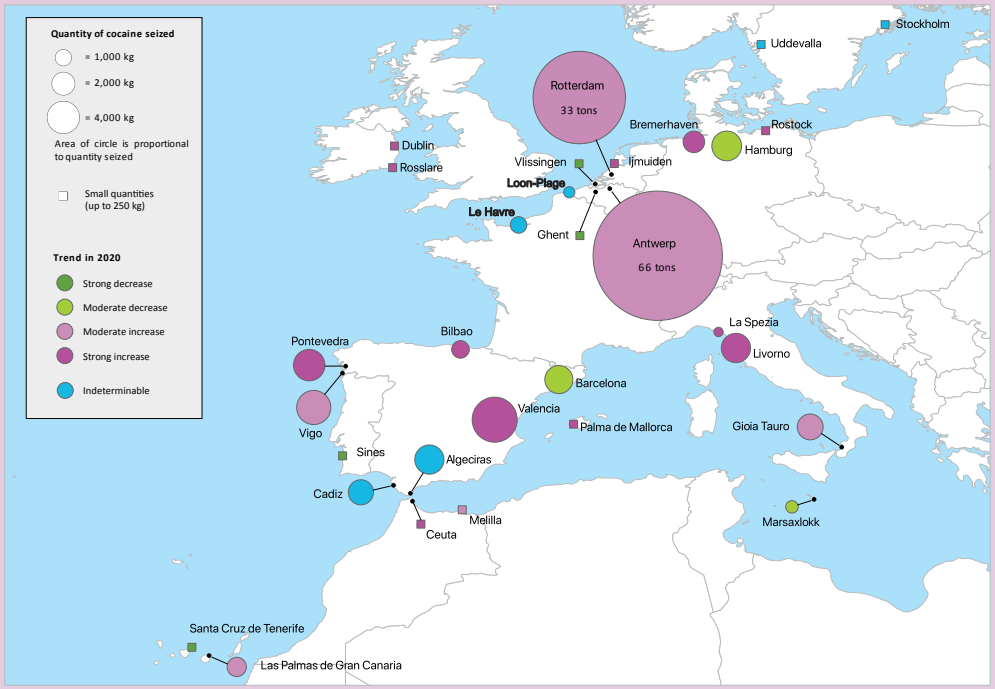
d *ABC*, "Incautan en Alemania y Bélgica 23 toneladas de cocaína procedentes de Paraguay, récord en Europa", 24 February 2021.

Most of the cocaine seized in the United States is intended for the domestic market, although some cocaine smuggled into the country is also intended for onward trafficking to other countries.[51] Based on reports to UNODC of countries of origin, transit and destination of drugs seized between 2015 and 2019 by various countries, some cocaine shipments had also transited the United States before reaching other countries in North America (Canada), Asia (Indonesia, Japan and Republic of Korea), Oceania (Australia), Africa (South Africa) and Europe (Belgium, Ireland and Italy).[52] The use of the United States as a transit country for cocaine shipments to Europe seems to be a rather recent phenomenon, however.

51 Ibid.

52 The increase in the amount of cocaine seized in the United States in 2019 can be primarily attributed to a record seizure of close to 18 tons of cocaine from a cargo container on the *MSC Gayane* in Philadelphia, Pennsylvania, in June 2019, destined for Antwerp, Belgium (United States, Department of Justice, Drug Enforcement Administration, *2020 National Drug Threat Assessment*).

Quantities of cocaine seized in seaports by customs authorities, Western and Central Europe, 2020, and trend in comparison with 2019



Source: WCO, Regional Intelligence Liaison Office for Western Europe, Customs Enforcement Network database (from UNODC and Europol, *Cocaine Insights 1: The Illicit Trade of Cocaine from Latin America to Europe – from Oligopolies to Free-for-all?* (forthcoming)).

Notes: For French seaports, data refer to 2019 as data for 2020 were not available.
The trend was designated as a large increase if the quantity seized in 2020 was at least double that seized in 2019, and as a large decrease if the quantity seized in 2020 was at the most half of that seized in 2019. Otherwise, the trend was designated as a moderate increase or moderate decrease if the quantity seized in 2020 increased or decreased by more than 5 per cent in comparison with 2019. The situation where the variation was within 5 per cent (considered stable) did not occur.
For seaports for which data were available for only one of the years 2019 and 2020, the trend in 2020 could not be determined and is shown as "indeterminable".

The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by the United Nations.

Elsewhere in North America, Canada has been identified as a transit country for cocaine destined for Australia, Japan and New Zealand. Mexico reported that about 4 per cent of the cocaine seized in 2018 had been destined for the Netherlands and 8 per cent of the cocaine seized in 2019 had been destined for China.[53] Moreover, over the period 2015–2019, countries in Asia (China and Indonesia), Oceania (Australia and New Zealand), Africa (Kenya) and Europe (Iceland) reported that cocaine had transited Mexico, among other countries, prior to arriving on their territories.

Increase in cocaine trafficking to Europe

The second largest cocaine trafficking flow worldwide is that from the Andean countries to Europe, in particular to Western and Central Europe, the second largest market for the drug after that of North America. The quantity of cocaine seized in Western and Central Europe more

53 UNODC, responses to the annual report questionnaire.

A diversification of actors in the cocaine supply chain between Latin America and Europe has facilitated an increase in the availability of cocaine in Europe

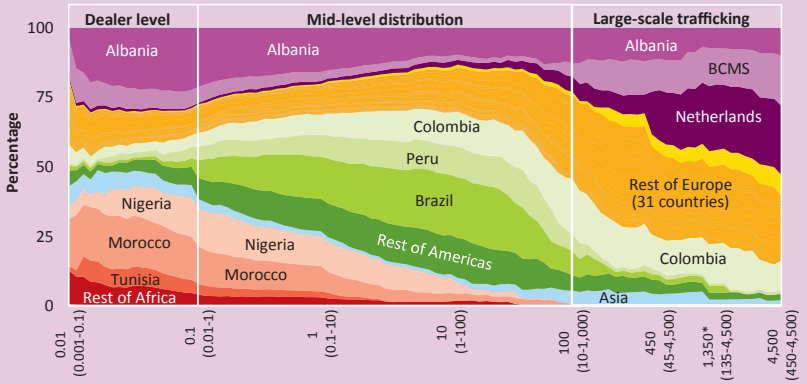
In recent years, a diversification of the criminal actors involved in managing the cocaine supply chain between South America and Europe has been observed. In the past, this illicit trade was dominated by a small number of well-established actors and channels, most notably Italian organized crime groups and alliances between Colombian and Spanish groups. Criminal groups such as the 'Ndrangheta (whose heartland is in the Italian region of Calabria) exercised a competitive advantage over other European trafficking organizations by means of their presence in Latin America and direct contacts with suppliers in or close to the countries where cocaine is manufactured.[a, b, c]

For many years, the Netherlands has been an important staging post for several criminal organizations, including from the Netherlands itself, to receive shipments of cocaine from South America and distribute the drug throughout Europe. However, in recent years, a number of other European groups have emerged as major players in orchestrating the shipment of significant quantities of cocaine to Europe, also by establishing their own presence and contacts in Latin America. To some extent, this may have been facilitated[d] by an increasingly fragmented criminal landscape[e] in Colombia in the aftermath of the demobilization of FARC-EP. The proliferation of smaller criminal and armed non-State groups, the absence of monolithic organizations controlling the various stages of the cocaine manufacture and trafficking chain and the increased compartmentalization of these activities,[f] may have spawned new alliances and supply chains.

Some of the emergent networks, in particular Albanian networks, are also involved in the distribution of cocaine across Europe and within several European countries, enabling them to implement an "end-to-end" business model.

Groups composed of Serbo-Croat speakers, typically nationals of Bosnia and Herzegovina, Croatia, Montenegro and Serbia, have also become major players in the procurement of large quantities of cocaine and organizing transportation and sale to European buyers.[d] This diversification has led to both increased competition and increasingly frequent instances of collaboration among different groups engaged in cocaine trafficking, resulting in a more efficient supply chain. Coupled with the high levels of coca bush cultivation and manufacture of cocaine in South America, it is likely that these developments have also contributed to the increased availability of cocaine in Europe.[d]

Distribution of foreign nationals arrested in Europe in connection with individual cocaine seizures, by nationality, according to size of seizure, 2018–2020



Source: UNODC, Drugs Monitoring Platform.

Note: BCMS stands for Bosnia and Herzegovina, Croatia, Montenegro and Serbia and thus includes the Serbo-Croat-speaking groups in Europe. The distribution at a given quantity is determined by considering all relevant cases in which the quantity seized was within a factor of 10 of the nominal value indicated on the axis (the moving window is indicated as a range in brackets). Since the largest seizure occurring in this universe was of 4.5 tons, for nominal values larger than 450 kg the moving window is effectively biased to the left.

a Peter Chalk, *The Latin American Drug Trade – Scope, Dimensions, Impact, and Response* (Santa Monica, California, RAND Corporation, 2011).

b Fondazione ICSA (Intelligence Culture and Strategic Analysis) and Direzione Centrale per i Servizi Antidroga, Italy, *Rapporto Narcotraffico 2012* (November 2012).

c Roberto Saviano, *ZeroZeroZero* (Milan, Feltrinelli Editore, 2013).

d UNODC and Europol, *Cocaine Insight 1: The Illicit Trade of Cocaine from Latin America to Europe – from Oligopolies to Free-for-all?* (forthcoming).

e InSight Crime, "The criminal portfolio of the ex-FARC mafia", 11 November 2019.

f Jeremy McDermott, "The 'Invisibles': Colombia's new generation of drug traffickers", InSight Crime, 15 March 2018.

than doubled in the period 2015–2019,[54] while prices remained stable and cocaine purity increased,[55] suggesting an overall increase in the flow of cocaine to Western and Central Europe and in the availability of cocaine, despite a sharp increase in the quantities of the drug seized.

The main entry points for cocaine trafficked to Europe from South America include Belgium, the Netherlands and Spain. Forensic testing of cocaine samples from seizures of shipments smuggled to Western and Central Europe have confirmed that the cocaine trafficked to Europe primarily originates in Colombia (68 per cent) and, to a lesser extent, in Peru (19 per cent) and the Plurinational State of Bolivia (4 per cent).[56]

Although the majority of the cocaine trafficked to Europe continues to originate in and depart from Colombia, Brazil is increasingly reported as a transit country from where cocaine shipments depart for Europe.[57] The most frequently reported country of origin, departure and transit for shipments to Western and Central Europe over the period 2015–2019 was Colombia, followed by Brazil and Ecuador; between 2010 and 2014, the list was headed by Colombia, followed by Peru and then Brazil.[58]

Some of the cocaine trafficked to Europe is also trafficked through transit regions, most notably West Africa[59] and North Africa, as reflected by significant seizures of cocaine made in West Africa and Morocco in recent years.[60]

Most of the cocaine available on European drug markets is smuggled to Europe by sea, primarily in maritime container shipments that enter Europe through major ports such as Antwerp, Belgium, Rotterdam, the Netherlands, Hamburg, Germany, and Valencia, Spain. After entering Europe at these main distribution hubs, cocaine shipments are typically trafficked onward by road to destination markets in the region.[61]

54 EMCDDA and Europol, *EU Drug Markets Report 2019* (Luxembourg, Publications Office of the European Union, 2019).
55 EMCDDA, *European Drug Report 2020: Key Issues* (Luxembourg, Publications Office of the European Union, 2020).
56 EMCDDA and Europol, *EU Drug Markets Report 2019*.
57 Ibid.
58 UNODC, responses to the annual report questionnaire.
59 EMCDDA and Europol, *EU Drug Markets Report 2019*.
60 UNODC, Drugs Monitoring Platform.
61 EMCDDA and Europol, *EU Drug Markets Report 2019*.

Rising trafficking of cocaine from Brazil via Africa to Europe

The overall quantity of cocaine seized in Africa increased from 1.2 tons in 2015 to 12.9 tons in 2019, a tenfold increase in five years. However, this amount was equivalent to 0.9 per cent of the global quantity of cocaine seized in 2019, which, in combination with the comparatively modest prevalence of cocaine use in the region,[62] suggests that the continent may not be a major destination market for cocaine.

As there have been no reports of any significant strengthening of law enforcement capacity over the past five years, it is likely that the increase in the quantity of cocaine seized reflects actual growth in cocaine trafficking flows to and from Africa, most notably to and via West and Central Africa and North Africa, which accounted, respectively, for 54 and 39 per cent of the total quantity of cocaine seized in Africa in the period 2015–2019. This clearly underlines the dominance of these two subregions in cocaine trafficking affecting Africa.

Seizures of cocaine in transit to, within and departing Africa highlight the continent's continued role in the global cocaine market. The main departure country for shipments to Africa seems to be Brazil, possibly owing to its trade infrastructure and linguistic links with some African countries. Over the period 2015–2019, Brazil was the country most frequently reported by African countries as a country of origin, departure or transit of cocaine shipments, accounting for 47 per cent of all such reports (excluding African departure and transit countries). By contrast, Colombia accounted for 16 per cent, Peru for 7 per cent, Mexico for 4 per cent and the Bolivarian Republic of Venezuela for 4 per cent.

This pattern of cocaine shipments primarily departing from Brazil, mostly by sea but also by air, for destinations in Africa for onward trafficking to other destinations in Africa, Europe (most notably Belgium, followed by (in decreasing order of mentions by Member States over the period 2015–2019) the Netherlands, Italy, Spain, France and Portugal)[63, 64] and partly to Asia and Oceania, has continued to be observed in the last two years.

62 See the chapter entitled "Demand for cocaine" in the present booklet.
63 UNODC, reponses to the annual report questionnaire.
64 UNODC, Drugs Monitoring Platform.

Recent cocaine trafficking in Africa

Cocaine trafficking from Brazil to Africa

A number of cocaine seizures made in Brazil in recent years were actually destined for Africa, typically as a trans-shipment location for onward trafficking to Europe, although some shipments were also destined to Africa via Europe. For example, in June 2019, 0.7 tons of cocaine were seized in a container in São Paulo that had been destined to be trafficked via Belgium to Ghana.[a] In December 2020, 360 kg of cocaine were seized in a container in São Paulo that had been destined to be shipped via Spain to Nigeria. Direct shipments to Africa, however, are still more common. In November 2019, for example, 1.3 tons of cocaine were seized in São Paulo in two containers of sugar bags that had been destined to be shipped by boat to Morocco.[a] Seizures of between 100 kg and 400 kg were also made in containers in São Paulo and the State of Santa Catarina that had been destined to be shipped to Côte d'Ivoire (May 2020), to Libya (May 2020) and to Nigeria (December 2020). Moreover, over the period 2019–2021, smaller quantities of cocaine (between 1 kg and 10 kg per trafficker) were trafficked by air to various countries in Africa, namely Angola, Benin, Burundi, Cameroon, the Democratic Republic of the Congo, Egypt, Equatorial Guinea, Ethiopia, Mali, Mozambique, Namibia, Nigeria, Seychelles and Sierra Leone.[a]

In parallel, a number of significant seizures of cocaine that had departed from Brazil were made in Africa. For example, in January 2019, the authorities in South Africa seized 706 kg of cocaine in a container shipped by sea from Brazil, which was expected to transit South Africa then Singapore en route to its final destination, India.[a] In June 2019, the authorities in Senegal seized 798 kg of cocaine inside 15 new cars onboard a ship travelling from Brazil to Angola.[a] In December 2019, the authorities in Benin seized 755 kg of cocaine in a container on a ship in Benin that had originated in Brazil and was destined to transit the Niger[a] before reaching its ultimate destination, Europe.[b] In September 2018, according to media reports, 1.2 tons of cocaine were seized close to São Paulo at the port of Santos, Brazil, destined for the port of Abidjan, Côte d'Ivoire.[c] Subsequent investigations seem to have revealed that the shipment was part of a larger scheme organized by Italian organized crime groups which, for this purpose, set up a fake construction company in Abidjan in order to be able to legally purchase second-hand equipment from Brazil in which the cocaine was hidden. The ultimate purchasers of the cocaine were allegedly the 'Ndrangheta and the Camorra in Italy.[d] Despite the arrest of a number of people involved in these trafficking activities, including a number of Italians and citizens of Côte d'Ivoire,[d] cocaine trafficking from Brazil to Côte d'Ivoire continued. In February 2020, authorities in Côte d'Ivoire confiscated 411 kg of cocaine in the country's territorial waters from a ship that had departed from Brazil.[a] Similarly, in April 2020, the Brazilian authorities seized 146 kg of cocaine at a seaport near São Paulo, destined for Côte d'Ivoire, although the final destination was likely to have been the port of Antwerp, Belgium.[a]

In February 2020, the National Drug Law Enforcement Agency of Nigeria seized 43 kg of cocaine at Tin Can Island Port, Lagos, that had departed from Brazil. In November 2020, the Nigerian authorities seized 12 kg of cocaine en route from São Paulo to Addis Ababa, Ethiopia, and, in January 2021, they seized 27 kg of cocaine that had arrived by air from Brazil via Addis Ababa.[a] Significant amounts of cocaine also departed Brazil for Guinea-Bissau. In March 2019, 0.8 tons of the drug, found in the false bottom of a truck loaded with frozen fish, were seized in Guinea-Bissau, apparently intended for subsequent shipment via Sahel countries to North Africa and Europe.[a, e] More than 1.8 tons were seized in September 2019; the trafficking operation involved nationals from Colombia, Guinea-Bissau and Mali.[a] From Guinea-Bissau, cocaine may be trafficked by air to Lisbon, Portugal.[a, f]

Cocaine trafficking from other South American countries to Africa

Meanwhile, other South American departure countries continue to play a role and/or have been becoming increasingly involved in the shipment of cocaine to Africa. For example, in 2019, Colombian authorities seized 1.2 tons of cocaine in a container destined for Cabo Verde.[a] In September 2019, the South African

authorities seized 85 kg of cocaine in a container that had departed from Ecuador.[a] In December 2019, Uruguayan law enforcement authorities seized more than 6 tons of cocaine destined for Togo. The previous record seizure in Uruguay was 3 tons of cocaine, found in a container in the Port of Montevideo in November 2019, which had also been destined for Africa, according to the media.[g] In February 2020, 350 kg of cocaine were seized in Guyana, en route to Nigeria.[a] In December 2020, 51 kg of cocaine were seized in Panama in a container destined for South Africa.[a] A few months later, in February 2021, Côte d'Ivoire security forces seized more than 1 ton of cocaine that had been shipped to the country via Paraguay.[a]

Cocaine trafficking from Africa to Europe

In parallel, Benin appears to have emerged as a significant transit and departure country for cocaine shipments in Africa, partly due to the fact that Cotonou Airport was operational during much of the period in 2020 when airports in neighbouring countries were closed because of the COVID-19 pandemic. This has attracted drug traffickers from neighbouring countries, who continued to use Benin as a trans-shipment location even once airports in other countries in the region had reopened. During the last four months of 2020, 28 drug couriers (mostly smuggling cocaine) were intercepted in Cotonou, Brussels and Paris, having departed from or transited Benin. The majority of them had a Nigerian background but were holding European (mostly Italian) passports or residence cards; some were European passport holders without a Nigerian background.[h]

Smugglers from other countries in the region were also identified. For example, in November 2020, a Ghanaian courier was arrested at Cotonou Airport in possession of 14 kg of cocaine, having acquired the cocaine in Brazil and smuggled it by air from Brazil via Addis Ababa to Benin.[h]

Even more surprising is that a significant proportion of all the cocaine intercepted in Benin in 2020 had been smuggled via Antwerp, Belgium, in a container loaded with 557 kg of cashew nuts, which was seized in Benin in October 2020.[a] This suggests that some cocaine is also trafficked from South America via Europe to Africa for subsequent re-export to Europe.

a UNODC, Drugs Monitoring Platform.

b UNODC, responses to the annual report questionnaire.

c Partilhar, "Mais de 1 tonelada de cocaína com destino à Costa do Marfim é apreendida no Porto de Santos", Portugal Digital (18 September 2018).

d José Claudio Pimentel, "Máfia usou máquinas de construção para esconder 1,2 t de cocaína em SP", Globo.com – Santos e Região (16 July 2019).

e Nicolas Hague, "Guinea-Bissau drugs: Raid intercepts 800 kg of cocaine", Al Jazeera, 13 March 2019).

f Global Initiative against Transnational Organized Crime, *Breaking the Vicious Cycle, Cocaine politics in Guinea-Bissau* (May 2020).

g Lucia I. Suarez Sang, "Uruguay seizes 6 tons of cocaine worth $1B in country's largest bust", Fox News, 28 December 2019.

h CRIMJUST Inter-regional Investigative Case Forum, Accra, Ghana, 27-28 January 2021.

Asia emerging as a cocaine transit region

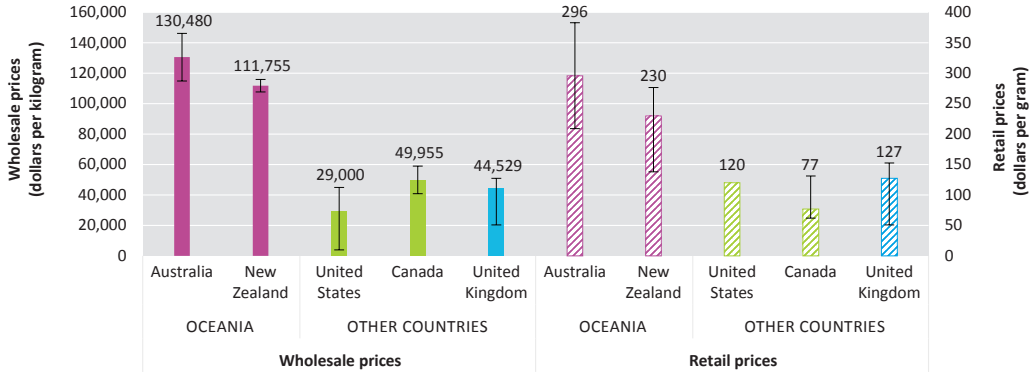
The quantity of cocaine seized in Asia in 2019 amounted to 19.1 tons, an almost fifteenfold increase from the 1.3 tons reported in 2015. In the period 2015–2019, the largest quantities of cocaine seized in the region were seized in East and South-East Asia (79 per cent of the total), followed by the Near and Middle East and South-West Asia (14 per cent) and South Asia (7 per cent).

The bulk of the cocaine seized in Asia in 2019 was reported by Malaysia, which accounted for 80 per cent of the total quantity of cocaine seized in the region, followed by Hong Kong, China (8 per cent). However, most of the cocaine seized in Malaysia in 2019 was not destined for that country, but rather for Australia. It was related to a single shipment from Colombia that had travelled by sea via Ecuador and Dubai, United Arab Emirates, to Malaysia, where the cocaine was seized while in transit.

The largest quantities of cocaine seized in the Near and Middle East and South-West Asia in 2019 were reported by Saudi Arabia, followed by Pakistan and Lebanon, while the largest quantities of cocaine seized in South Asia were reported by India and those in Central Asia/Transcaucasia by Azerbaijan.

The most frequently reported countries of origin, departure and transit of cocaine shipments to countries in Asia

FIG. 8 Cocaine prices in Oceania compared with selected other countries, 2019 (or latest year available)



Source: UNODC, responses to annual report questionnaire.

Note: Data for Australia are based on the midpoint of the minimum and maximum prices reported for 2019. Retail price data for New Zealand refer to 2019, with a range extrapolated from 2018, while wholesale price data refer to 2016. Retail and wholesale price data for the United States refer to 2019, while the wholesale price range refers to 2018. Retail price data for Canada refer to 2018, while wholesale price data refer to 2014.

in the period 2015–2019 were Brazil, followed by the United Arab Emirates, Colombia, Nigeria, Qatar, Peru, South Africa, the Plurinational State of Bolivia, the Netherlands, Ethiopia, the Islamic Republic of Iran and the United States.

Cocaine trafficking to Asia in the period 2015–2019 was mostly carried out by air. The only exceptions where most cocaine was brought into countries by ship were reported by Israel in 2016, by China in 2015, 2017 and 2019, by the Philippines in 2018 and by Malaysia in 2019.

Cocaine trafficking to Oceania remains profitable

Despite the long trafficking routes and the number of geographically dispersed transit countries, the high price of cocaine in Australia and New Zealand makes cocaine smuggling to Oceania attractive to drug traffickers. Trafficking cocaine to Australia from otherwise typical final destination markets, such as North America and Western and Central Europe, therefore remains highly profitable for drug traffickers.

In the period 2015–2019, the most frequently reported countries of origin, departure and transit of cocaine seized in Oceania were Peru, followed by the Netherlands, the United States, Brazil, Mexico, South Africa, Canada, the United Kingdom of Great Britain and Northern Ireland, Chile and Argentina.[65]

In the fiscal year 2018/19, a total of 49 countries were identified by Australia alone as embarkation points for cocaine detected at the Australian border. They included countries in the Americas, Europe, Africa and Oceania. By weight of the cocaine detected, the key embarkation points were South Africa (for the first time ever), followed by Mexico, the United States, Fiji, France, Canada, the Netherlands, Brazil, Belgium and the United Kingdom.[66]

In New Zealand, most of the cocaine seized in 2019 had departed from Ecuador (most likely having originated in Colombia), followed by Peru. The main transit countries for cocaine shipments to New Zealand in 2019 were Ecuador (63 per cent), followed by Argentina (12 per cent) and the United Arab Emirates (6 per cent).[67]

Most of the cocaine intercepted in Australia[68] and New Zealand[69] has been shipped by sea. However, data for

65 UNODC, responses to annual report questionnaire.
66 Australian Criminal Intelligence Commission, *Illicit Drug Data Report 2018–19* (Canberra, 2020).
67 UNODC, responses to the annual report questionnaire.
68 Australian Criminal Intelligence Commission, *Illicit Drug Data Report 2018–19.*
69 UNODC, responses to the annual report questionnaire.

FIG. 9 Distribution of seizures of cocaine smuggled into Australia and New Zealand, 2018–2019

Sources: UNODC, responses to the annual report questionnaire; and Australian Criminal Intelligence Commission, Illicit Drug Data Report 2018–19 (Canberra, 2020).

Note: Data for Australia refer to the fiscal year 2018/19. Data for New Zealand reflect 2018 and 2019 customs data.

Australia also show a large number of small shipments trafficked by international mail, suggesting that cocaine may also be imported as a result of drug purchases made by end users over the darknet.

Drug profiling of cocaine seized at the Australian border indicated that about 70 per cent of the cocaine that entered the country in the first six months of 2019 had originated in Colombia and just 2 per cent in Peru; the remainder could not be classified. This reflects significant changes since 2013, when only 10 per cent of the cocaine analysed had originated in Colombia and 90 per cent had originated in Peru.[70]

Cocaine interception rate in Australia

Despite the recent decrease in the amount of cocaine seized in Australia, available data suggest that the interception rate of cocaine shipments in Australia is still high.

With a reported quantity of 4.64 tons of cocaine consumed in Australia in the fiscal year 2018/19 and 5.68 tons, on average, in 2019/20, based on the analysis of wastewater,[a] it can be assumed that approximately 5.16 tons of pure cocaine were consumed in the country in 2019. The quantity of cocaine seized, not adjusted for purity, amounted to 1.43 tons in 2018,[b] which would have been equivalent to 1.06 tons of pure cocaine, based on an average purity of 74 per cent at the wholesale level across jurisdictions in Australia.[c] This suggests that 6.22 tons (5.16 tons plus 1.06 tons) of cocaine may have entered Australia in 2019, of which 1.06 tons, or 17 per cent, were intercepted by the authorities.

a Australian Criminal Intelligence Commission, University of Queensland and University of South Australia, *National Wastewater Drug Monitoring Program, Report 12* (Canberra, February 2021).

b UNODC, response to the annual report questionnaire.

c Australian Criminal Intelligence Commission, *Illicit Drug Data Report 2018–19* (Canberra, 2020).

70 Australian Criminal Intelligence Commission, *Illicit Drug Data Report 2018–19.*

COCAINE

Demand for cocaine

In 2019, roughly 20 million people worldwide (range: 17–25 million), or 0.4 per cent of the adult population aged 15–64 (range: 0.3 per cent–0.5 per cent), had used cocaine in the past year. A high prevalence of cocaine use is estimated in Oceania (mainly for the subregion Australia and New Zealand, where it is 2.7 per cent), North America (2.1 per cent), Western and Central Europe (1.4 per cent) and South and Central America (nearly 1.0. per cent). The estimated extent of cocaine use in other subregions is far below the global average, although the availability of data is limited.

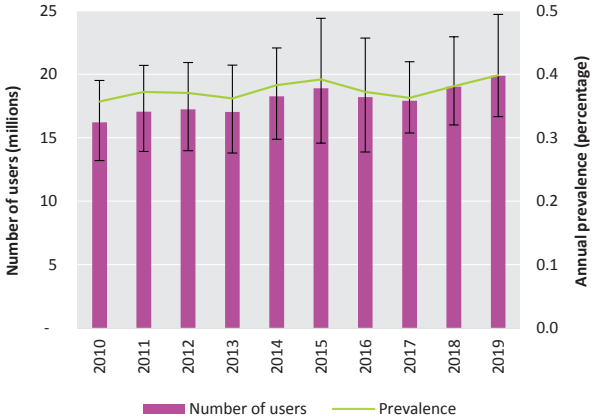
Between 2010 and 2019, the estimated prevalence of past-year cocaine use remained fairly stable, at about 0.4 per cent, but population growth led to an increase of 22 per cent in the number of people who had used cocaine in the past year. These estimates and global trends should be interpreted with caution, however, given the intrinsic limitations of general population surveys[71] and since only a limited number of countries provide new estimates every year. Cocaine use varies greatly across subregions and regions and the error margins are too wide to allow conclusions to be drawn about a statistically significant increase in cocaine use in the past decade.

Cocaine use in Africa

In Africa, in 2019, between 500,000 and 4.3 million people (best estimate: nearly 2 million people), or between 0.1 and 0.6 per cent (midpoint: 0.3 per cent) of the adult population, were estimated to have used cocaine in the past year. Although recent data from surveys among the general population are not available in the region, qualitative information reported by Member States indicated that, over the period 2015–2019, there was an increase in the use of cocaine in 11 of the 16 countries that reported such trends.

71 See the chapter entitled "Extent of drug use" in booklet 2, *Global Overview of Drug Demand and Supply*, of the present report

FIG. 10 **Global estimate of the number of people who use cocaine and of the prevalence of cocaine use, 2010–2019**



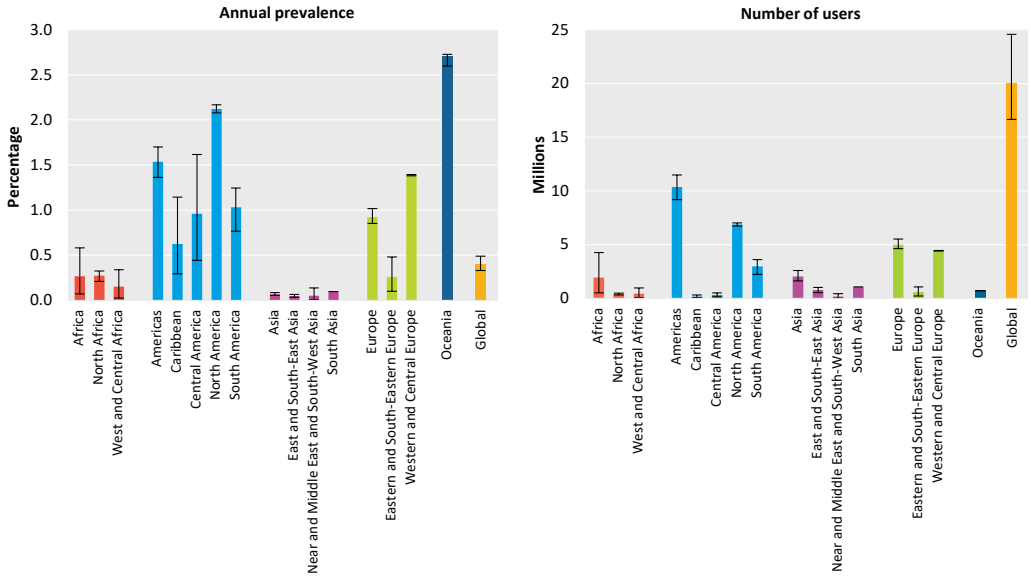
Source: UNODC estimates, based on responses to the annual report questionnaire.

Note: Annual prevalence of use among the population aged 15–64. Number of users in the past year aged 15–64.

In North Africa, past-year prevalence of cocaine use among the adult population in 2019 was estimated to be the same as the regional average (0.3 per cent), with fewer than 500,000 past-year users. Cocaine use among adolescents aged 15–17 in the subregion ranges between 0.2 per cent, in Tunisia, and 0.8 per cent, in Egypt, with a higher prevalence of use reported among boys than among girls.

Cocaine use in West and Central Africa is commonly reported among people seeking treatment for drug use disorders. A significant increase in the number of people entering drug treatment with cocaine as their primary drug of concern was observed in the subregion over the period 2014–2017: notwithstanding the differences in drug treatment systems and the extent to which drug treatment reporting was developed in a country over that period, the number of people treated for cocaine use disorders in countries in West and Central Africa

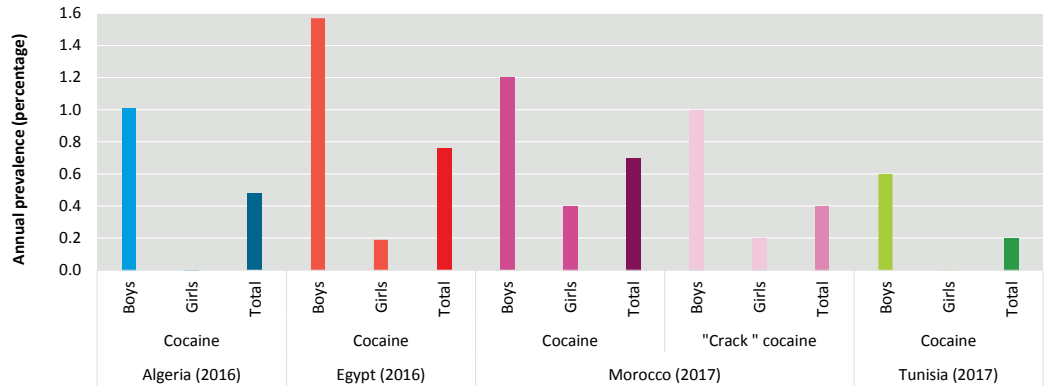
FIG. 11 Use of cocaine, by region and subregion, 2019



Source: UNODC estimates, based on responses to the annual report questionnaire.

Note: Cocaine use includes the use of cocaine salt and "crack" cocaine and other types such as coca paste, cocaine base, "basuco", "paco" and "merla". Data are not shown for subregions where recent estimates (not older than 10 years) were not available from countries and thus subregional estimates could not be computed. For 2019, the global number of users and prevalence of use are based on estimates from 93 countries covering 58 per cent of the global population. New data points were reported for 10 of those countries in 2019.

FIG. 12 Cocaine use among adolescents aged 15–17, North Africa, 2016 or 2017



Source: Council of Europe, Pompidou Group, Mediterranean School Survey Project on Alcohol and other drugs (MedSPAD) reports for Algeria, Egypt, Morocco and Tunisia.

Patterns of cocaine use and harm

Some of the national data from different subregions, presented in the present chapter, and studies, conducted mainly in European countries, suggest that people who use cocaine products (cocaine hydrochloride, cocaine base, "crack" cocaine and other products such as base paste, "oxi", "basuco" or "merla" (in South America)) may be grouped into different categories according to different dimensions. One such dimension, which is often used, is the extent of social integration, although it may project only a limited understanding of a very diverse population. The spectrum of people using cocaine products has thus been portrayed as encompassing those who are socially integrated and those who are socially marginalized.[a, b, c, d, e, f] Such a dichotomy has, however, been increasingly challenged by the intersection of the two groups with regard to some characteristics, thereby highlighting the need to consider a nuanced spectrum of patterns of cocaine use and groups of users instead.

At one end of the spectrum are socially integrated cocaine users who are considered as those with stable living conditions and regular employment who use cocaine alone or in combination with other drugs. Use of the drug in nightlife and other recreational settings is a common feature, although not the only pattern of use, observed among socially integrated cocaine users.[g, a] A subset of recreational cocaine users also develops a more regular or harmful pattern of use that extends beyond party settings, and may lead to cocaine use disorders.[b]

At the other end are socially marginalized groups of cocaine users who are characterized as those with socioeconomic and health problems, including people who are homeless. They may use cocaine products and other drugs within "street drug scenes"; they are often former or current heroin or opioid users and many inject cocaine or "crack" cocaine.[b, h, a, i, d] Frequency of cocaine use, patterns of consumption and health consequences vary between the different groups of users, but polydrug use is a predominant pattern among people who use cocaine.[d]

In general, socially integrated cocaine users have a lower frequency of use than socially marginalized cocaine users.[d] One study reported that one third of the socially integrated group reported regular use of cocaine (more than two times per week), compared with 81 per cent in the marginalized group.[e] A common feature of drug use, polydrug use is also a common pattern of use among people who use cocaine products; cocaine is frequently combined with, rather than used as a replacement for, other drugs. The highest intensity of polydrug use, however, is found among socially marginalized groups.[f, e] Such a pattern of polydrug use among cocaine users may include the concomitant and sequential use of alcohol, cannabis, "ecstasy", benzodiazepine and heroin (the most commonly reported substances).[j, k, l, m, n] The use of cocaine among heroin users, including among those in opioid agonist treatment, is seen as a means of potentiating the desired effect of the other drugs used, as well as a means of reducing their undesired effects (such as withdrawal).[o]

The literature has also reported a strong relationship between injecting cocaine and injecting heroin. Indeed, heroin (by injection) has been reported as the predominant substance used by socially marginalized cocaine (and "crack" cocaine) users.[e, p, q, a] Apart from polydrug use, the use of cocaine by injection has also been reported recently in new HIV outbreaks among PWID in Europe and North America.[r, s, p, a] In Scotland, for example, recent epidemiological studies have demonstrated that HIV prevalence among PWID in Glasgow city centre increased from 1.1 per cent in the period 2011–2012 to 10.8 per cent in the period 2017–2018. The increase in HIV prevalence was associated with homelessness, incarceration, injecting cocaine and injecting in outdoor or public places.[t] Use of cocaine has also been associated with psychiatric comorbidities, especially anti-social personality disorder and symptoms such as anxiety, depression, paranoia and psychosis.[l]

Polydrug use, in particular heroin use, among cocaine users is also associated with an increased risk of overdose and mortality. A longitudinal study among cocaine users recruited over the period 1989–2013 in Italy found that, during the 38 years of the study's follow-up, the excess mortality[u] for all causes among the cohort was 6.24. It was higher among women (15.03) than among

men (6.24) and it was higher among those using heroin and cocaine (9.06) than among those using only cocaine (5.21). Of the deaths of those who had been using cocaine only, most were the result of road accidents and suicide; the deaths of those who had been using cocaine and heroin were attributed to opioid overdose and cardiovascular diseases.[k, v] A retrospective cohort study of heroin and cocaine users in Spain (over the period 1997–2007) reported that the crude mortality rate from overdoses and injuries was very high, especially among those aged 40–59. The crude mortality rate among the cohort was 191 deaths per 100,000 person years as a result of overdose and 88 deaths per 100,000 person years as a result of injuries among people who used only cocaine. Among those who reported the use of heroin and cocaine, the crude mortality rate was much higher (595 deaths per 100,000 person years as a result of overdose and 217 deaths per 100,000 person years as a result of injuries).[c]

a EMCDDA, *Recent Changes in Europe's Cocaine Market: Results from an EMCDDA Trendspotter Study* (Luxembourg, Publications Office of the European Union, 2018).

b Emily Stevenson, "Cocaine use in Tayside: health needs assessment" (January 2020).

c Gemma Molist and others, "Effect of ageing and time since first heroin and cocaine use on mortality from external and natural causes in a Spanish cohort of drug users", *International Journal of Drug Policy*, vol. 53 (2018), pp. 8–16.

d Irmgard Eisenbach-Strangl and Ricardo Rodrigues, eds, *Second Multi-City Study on Quantities and Financing of Illicit Drug Consumption* (Vienna, European Centre for Social Welfare Policy and Research, 2018.

e Michael Prinzleve and others, "Cocaine use in Europe – a multi-centre study: patterns of use in different groups", *European Addiction Research*, vol. 10, No. 4 (September 2004), pp. 147–155.

f Ludwig Kraus and others, "Drug use patterns and drug-related disorders of cocaine users in a sample of the general population in Germany", *European Addiction Research*, vol. 13, No. 2 (March 2007), pp. 116–125.

g Tina Van Havere and others, "Drug use and nightlife: more than just dance music", *Substance Abuse Treatment, Prevention and Policy*, vol. 6, No. 18 (July 2011).

h Magdalena Harris and others, "Injecting-related health harms and overuse of acidifiers among people who inject heroin and crack cocaine in London: a mixed-methods study", *Journal of Harm Reduction*, vol. 16, No. 60 (2019).

i Stephen E. Lankenau and others, "Crack cocaine injection practices and HIV risk: findings from New York and Bridgeport", *Journal of Drug Issues*, vol. 34, No. 2 (April 2004), pp. 319–332.

j Susanna Prepeliczay and Henning Schmidt-Semisch, "Gesundheitliche Risikolagen in der Bremer Drogenszene: Empirische Befunde einer qualitativen Studie", *Prävention and Gesundheitsförderung* (2020).

k Raimondo Maria Pavarin and Angelo Fioritti, "Mortality trends among cocaine users treated between 1989 and 2013 in northern Italy: results of a longitudinal study", *Journal of Psychoactive Drugs*, vol. 50, No. 1 (August 2017), pp. 176–185.

l J.C.M. Narvaez and others, "Comorbidity associated with the use and misuse of crack cocaine", in *The Neuroscience of Cocaine: Mechanisms and Treatment*, Victor R. Preedy, ed. (London, Elsevier, 2017), pp. 567–576.

m Ludwig Kraus, Martin Steppan and Daniela Piontek, "Schätzung der Prävalenz substanzbezogener Störungen in Berlin: Opioide, Kokain und Stimulanzien" (Munich, Germany, Institut für Therapieforschung, April 2015).

n Maria Terezinha Zeferino and others, "Similarities and difference in crack cocaine use patterns in Santa Catarine, Brazil: capital vs. midwest", *Ciência and Saúde Coletiva*, vol. 22, No. 1 (January 2017).

o Francesco Leri, Julie Bruneau and Jane Stewart and others, "Understanding polydrug use: review of heroin and cocaine co-use", *Addiction*, vol. 98, No. 1 (January 2003), pp. 7–22.

P Don C. Des Jarlais and others, "HIV outbreaks among people who inject drugs in Europe, North America, and Israel", *Lancet HIV*, vol. 7, No. 6 (June 2020), pp. e434–e442.

q Vic Arendt and others, "Injection of cocaine is associated with a recent HIV outbreak in people who inject drugs in Luxembourg", *PLoS ONE*, vol. 15, No. 5 (May 2019).

r Andrew McAuley and others, "Re-emergence of HIV related to injecting drug use despite a comprehensive harm reduction environment: a cross-sectional analysis", *Lancet HIV*, vol. 6, No. 5 (May 2019), pp. e315–e324.

s Don C. Des Jarlais and others, "HIV infection among persons who inject drugs: ending old epidemics and addressing new outbreaks", *AIDS*, vol. 30, No. 6 (March 2016), pp. 815–826.

t Rebecca Metcalfe and others, "From hospital to the community: redesigning the human immunodeficiency virus (HIV) clinical service model to respond to an outbreak of HIV among people who inject drugs", *Journal of Infectious Diseases*, vol. 222, Suppl. No. 5 (October 2020).

u Excess mortality is a term used in epidemiology and public health that refers to the number of deaths from all causes in a crisis, above and beyond what would have been expected under "normal" conditions.

v Raimondo Maria Pavarin and others, "Mortality risk among cocaine users before and after the economic recession: results of a longitudinal study", *European Addiction Research*, vol. 26, No. 1 (January 2020), pp. 10–19.

increased from less than 100 in 2014 to 800, or nearly 2 per 1,000,000 people, in 2017.[72]

In South Africa, the number of people admitted to treatment for cocaine-related problems has remained consistently low across the different reporting sites in the country, but cocaine is often reported as a secondary substance of use among patients in drug treatment. In 2019, between 2 and 5 per cent of people entering drug treatment reported cocaine as a primary or secondary drug of use in South Africa.[73] By comparison, in 2014, between 3 and 10 per cent of patients in treatment reported cocaine as a primary or secondary drug of concern.[74]

Cocaine use in Asia

Cocaine use in Asia is minimal in terms of annual prevalence (ranging between 0.05 and 0.08 per cent of the adult population) but, in 2019, between 1.6 and 2.6 million people had used the drug in the past year. Recent data on the extent of cocaine use are not available from most countries in Asia, but in those for which data are available, cocaine use remains quite low. For example, in 2019, roughly 50,000 people in Indonesia (0.03 per cent of the adult population) and 32,500 people in Thailand (0.07 per cent of the adult population) were estimated to have used cocaine in the past year. In India, about 0.2 per cent of men and 0.01 per cent of women aged 10–75, an estimated 1 million people in total, reported past-year cocaine use in 2018.[75]

Mixed trends in cocaine use in South America

In South America, nearly 3 million people, or 1 per cent of the population aged 15–64, were estimated to be past-year cocaine users in 2019. In Central America, the prevalence of cocaine use is comparable with that in South America, with almost 1 per cent of the adult population (about 300,000 people) estimated to be past-year cocaine users in 2019. The prevalence of past-year cocaine use in the Caribbean is lower, at an estimated 0.6 per cent in 2019, or 180,000 past-year cocaine users among the adult population.

With nearly 1.5 million people who used cocaine and "crack" cocaine in the past year in 2016, or 1.0 per cent of the population aged 15–64, Brazil appears to be the largest cocaine market in South America.[76] However, an earlier household survey, implemented in 2012, had estimated that past-year prevalence of "crack" cocaine and cocaine in Brazil was 2.2 per cent of the adult population.[77]

Argentina, Bolivia (Plurinational State of), Chile, Colombia and Uruguay, the countries in South America with recent information on drug use, report mixed trends in the use of cocaine among the general population. In Argentina in 2017, 1.5 per cent of the population (2.4 per cent of males and 0.7 per cent of females) aged 12–65 had used cocaine in the past year.[78] The highest prevalence of past-year cocaine use (3 per cent) was reported among people aged 18–24 and, to a lesser extent, among people aged 25–49. Cocaine base paste was estimated to have been used by 0.1 per cent of the general population in the past year, mainly by men and people aged 25–34. However, this is difficult to estimate since people who use cocaine base paste are usually from socially marginalized groups, which are not well captured by household surveys. Over the period 2010–2017, the prevalence of cocaine use nearly doubled in Argentina: in 2010, 0.8 per cent of the adult population were estimated to be past-year cocaine users; the increase in cocaine use was greater among women than among men, and greater among adults aged 35–49 than among any other age group.[79]

In 2018 in the Plurinational State of Bolivia, about 0.6 per cent of the population aged 15–64 were estimated to have used cocaine in the past year and 0.2 per cent to have

72 UNODC, European Union and ECOWAS, *West African Epidemiology Network on Drug Use (WENDU) Report: Statistics and Trends on Illicit Drug Use and Supply 2014–2017* (2019).

73 Siphokazi Dada and others, "Monitoring alcohol, tobacco and other drug use trends in South Africa: July 1996 – December 2019 – Phase 47", Research Brief, vol. 23, No. 1 (Cape Town, South African Community Epidemiology Network on Drug Use, 2021).

74 Siphokazi Dada and others, "Monitoring alcohol, tobacco and other drug use trends in South Africa: July 1996 – December 2014", Research Brief, vol. 18, No. 1 (Cape Town, South African Community Epidemiology Network on Drug Use, 2015).

75 Atul Ambekar and others, *Magnitude of Substance Use in India 2019* (New Delhi, Ministry of Social Justice and Empowerment, 2019).

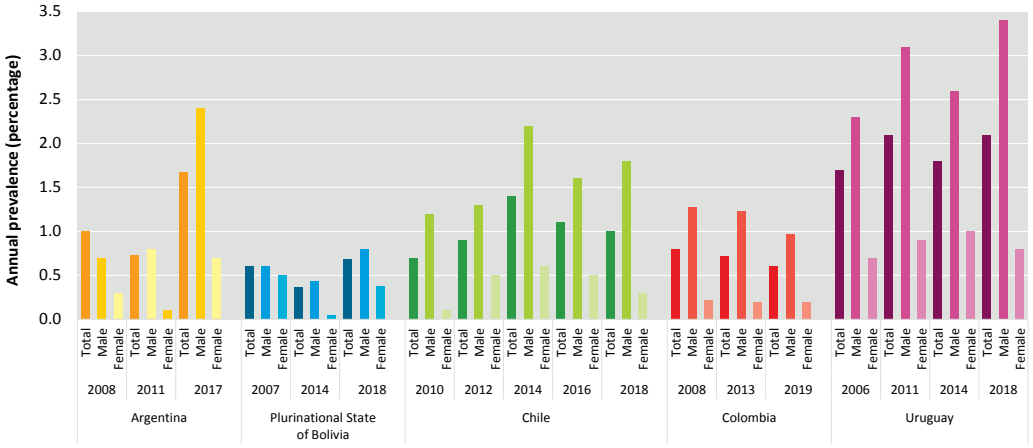
76 UNODC estimate based on a prevalence of 1.0 per cent cocaine and "crack" cocaine use among the population aged 15–64 in Brazil, as reported in the annual report questionnaire for 2016.

77 Renata Rigacci Abdalla and others, "Prevalence of cocaine use in Brazil: data from the II Brazilian National Alcohol and Drugs Survey (BNADS)", *Addictive Behaviours*, vol. 39, No. 1 (January 2014), pp. 297–301, as reported in the annual report questionnaire for 2019.

78 Argentina, Secretariat for Comprehensive Drug Policies, "Consumo de cocaína: estudio nacional en población de 12 a 65 años sobre consumo de sustancias psicoactivas – Argentina, 2017" (Buenos Aires, 2017).

79 Ibid.

FIG. 13 Trends in cocaine use among the adult population, South America (countries with recent data)



Sources: Argentina, Secretariat for Comprehensive Drug Policies, "Consumo de cocaína: estudio nacional en población de 12 a 65 años sobre consumo de sustancias psicoactivas – Argentina, 2017" (Buenos Aires, 2017); Plurinational State of Bolivia, National Council for the Fight against the Illicit Drug Traffic and Bolivian Observatory of Public Safety and the Fight against Drugs, 3er Estudio Nacional de Prevalencia y Características de Consumo de Drogas en Hogares de Ciudades Capitales de Departamento y el Alto (2018); responses submitted by Colombia to the annual report questionnaire; Chile, Chilean Drug Observatory, "Décimo tercer estudio nacional de drogas en población general de Chile, 2018"; and Uruguay, VII Encuesta Nacional Sobre Consumo de Drogas en Población General: Informe de Investigación (Montevideo, Junta Nacional de Drogas, Observatorio Uruguayo de Drogas, 2019) and previous years.

used cocaine base paste.[80] The past-year use of cocaine and cocaine base paste have both increased since the last national survey in 2014, but the increase in the past-year use of cocaine base paste was more pronounced than that of cocaine.[81] Cocaine use in the country was more frequent among men than women and, by age group, more frequent among those aged 16–24 than in other age groups; it was also more frequent among middle-income groups (high-middle- and middle-income groups) than low-income groups. The use of cocaine base paste was reported to be more common among low-income groups, however.[82]

In Uruguay, the past-year prevalence of cocaine use was reported to be 2 per cent of the adult population in 2018, a rate that had remained stable since 2011. In 2018, the past-year use of cocaine in Uruguay was higher among men than among women and, by age group, higher among people aged 26–35. About 7 per cent of past-year cocaine users reported that they "sometimes" used the drug weekly, and 1 per cent reported that they used it daily. Nevertheless, almost 43 per cent of past-year cocaine users in that country were considered to be suffering from cocaine use disorders.[83] In 2018, there were an estimated 8,800 regular users (about 4 people per 1,000 population aged 15–64) of cocaine base paste in Uruguay, which is considerably lower than the previous estimate of 14,000 regular users, in 2012. The comparison of two studies, which used respondent-driven sampling to survey regular users of cocaine base paste in 2012 and 2018, found that there has been a decline in the use of the substance among young adults. However, the proportion of older users – those in the age group 36–45 and older – has increased considerably, suggesting that

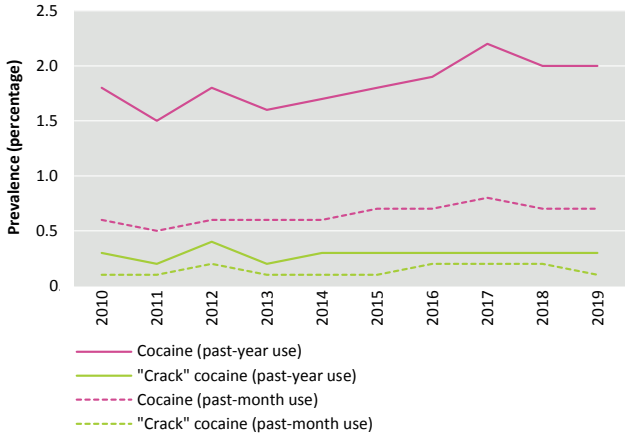
80 Plurinational State of Bolivia, National Council for the Fight against the Illicit Drug Traffic and Bolivian Observatory of Public Safety and the Fight against Drugs, *3er Estudio Nacional de Prevalencia y Características de Consumo de Drogas en Hogares de Ciudades Capitales de Departamento y el Alto* (2018).

81 The survey results indicate that the prevalence was stable between 2014 and 2018, since the prevalence estimates in 2014 and 2018 were within the margins of error.

82 Plurinational State of Bolivia, National Council for the Fight against the Illicit Drug Traffic and Bolivian Observatory of Public Safety and the Fight against Drugs, *3er Estudio Nacional de Prevalencia y Características de Consumo de Drogas en Hogares de Ciudades Capitales de Departamento y el Alto*.

83 Uruguay, *VII Encuesta Nacional Sobre Consumo de Drogas en Población General: Informe de Investigación* (Montevideo, Junta Nacional de Drogas, Observatorio Uruguayo de Drogas, 2019)

FIG. 14 **Cocaine and "crack" cocaine use trends among the population aged 12 and older, United States, 2010–2019**



Source: United States, Substance Abuse and Mental Health Services Administration, *Results from the 2019 National Survey on Drug Use and Health: Detailed Tables* (Rockville, Maryland, Center for Behavioral Health Statistics and Quality, 2020).

an ageing cohort of users who initiated use at the age of about 18, over the period 2002–2004, may have continued to use coca paste (*pasta básica de cocaína*) over the years. The use of coca paste (*pasta básica de cocaína*) is reportedly common among socially marginalized population groups, in particular the homeless and people living in shelters, and among those with a low level of education (less than primary level).[84]

Cocaine use in North America remains high

In North America, an estimated 2.1 per cent of the adult population, or 6.9 million people, were estimated to have used cocaine in the past year in 2019. In Canada, past-year prevalence of cocaine use in 2017 was estimated to be 2.5 per cent of the adult population, an estimate which had increased from 1.5 per cent in 2015.[85] Cocaine use in Mexico is much lower than in Canada and the United States and was estimated to be 0.8 per cent of the population aged 12–65 in 2016.[86]

84 Uruguay, *Personas, Calle, Consumos: Dos Estudios sobre Uso de Pasta base en Uruguay – Aproximaciones Cuantitativas y Etnográficas* (Montevideo, Junta Nacional de Drogas, Observatorio Uruguayo de Drogas, 2019).

85 Responses submitted by Canada to the annual report questionnaire.

86 Response submitted by Mexico to the annual report questionnaire for 2019.

In 2019 in the United States, 5.5 million people, or 2.0 per cent of the population aged 12 and older, had used cocaine in the past year. As a long-term trend, past-year use of cocaine reached a low in 2011 but increased thereafter and stabilized at a high level from 2016.[87]

Cocaine use in the United States is highest among young people (aged 18–25), with a past-year prevalence of 5.3 per cent in 2019. The prevalence of use of "crack" cocaine is much lower, with 778,000 people, or 0.3 per cent of the population aged 12 and older, reporting use of the substance in the past year. Among adults aged 18 and older, comparatively higher "crack" cocaine use is reported among those aged 26 and older. Generally, cocaine use is more common among socially integrated cocaine users, whereas cocaine injecting and use of "crack" cocaine is more common among socially marginalized groups of users.[88, 89]

Among the 5.5 million people in the Unites States who had used cocaine in the past year in 2019, nearly 2 million (0.7 per cent of the population aged 12 and older) were estimated to have used the drug on an average of 5.5. days in the past month. Among past-month users, 8.8 per cent (175,000 people) were estimated to be daily or near-daily users of cocaine.

In addition to overdose deaths attributed to opioid use in the United States, those attributed to cocaine use have also been increasing, in particular since 2014: over the period 2010–2019, the number of overdose deaths attributed to cocaine use increased nearly fourfold. However, this increase is attributed to a large extent to deaths that also involved an opioid, most notably synthetic opioids (fentanyls). In 2019, of the total 15,883 overdose deaths attributed to cocaine, 75 per cent involved an opioid, mostly fentanyls. While it is not known if the deaths were the result of the concomitant, sequential or inadvertent use of the two drugs, there have been reports of cocaine being either mixed inadvertently with fentanyls or adulterated with fentanyls in the United States.[90]

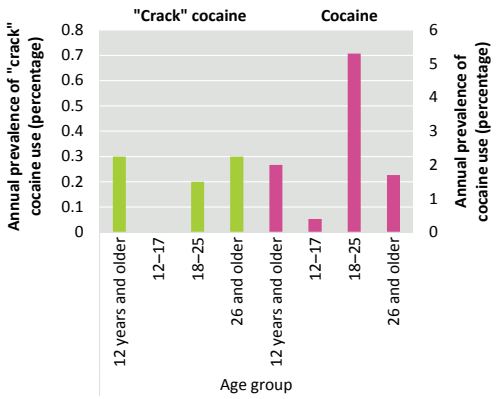
87 United States, Substance Abuse and Mental Health Services Administration, *Results from the 2019 National Survey on Drug Use and Health: Detailed Tables* (Rockville, Maryland, Center for Behavioral Health Statistics and Quality, 2020).

88 Ibid.

89 Considering that the household survey does not include the homeless or institutionalized populations, which tend to have higher rates of drug use in the United States (as in other countries), these estimates of people using "crack" cocaine could be underestimated.

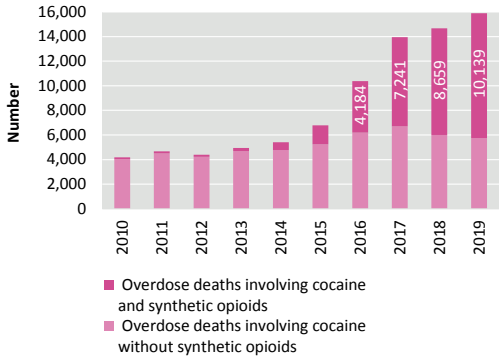
90 United States, Department of Justice, Drug Enforcement Administration, *2020 National Drug Threat Assessment* (March 2021).

FIG. 15 Cocaine and "crack" cocaine use, by age group, United States, 2019



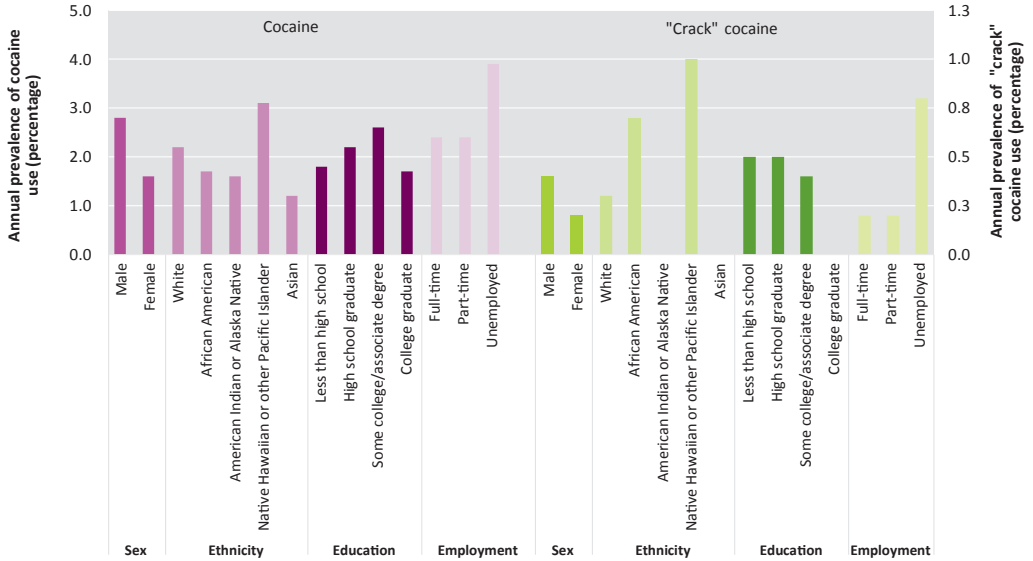
Source: United States, Substance Abuse and Mental Health Services Administration, Results from the 2019 National Survey on Drug Use and Health: Detailed Tables (Rockville, Maryland, Center for Behavioral Health Statistics and Quality, 2020).

FIG. 17 Cocaine overdose deaths, United States, 2010–2019



Source: United States, Centers for Disease Control and Prevention, National Center for Health Statistics, Wide-ranging Online Data for Epidemiologic Research (CDC Wonder), "Multiple cause of death (detailed mortality) 1999–2019".

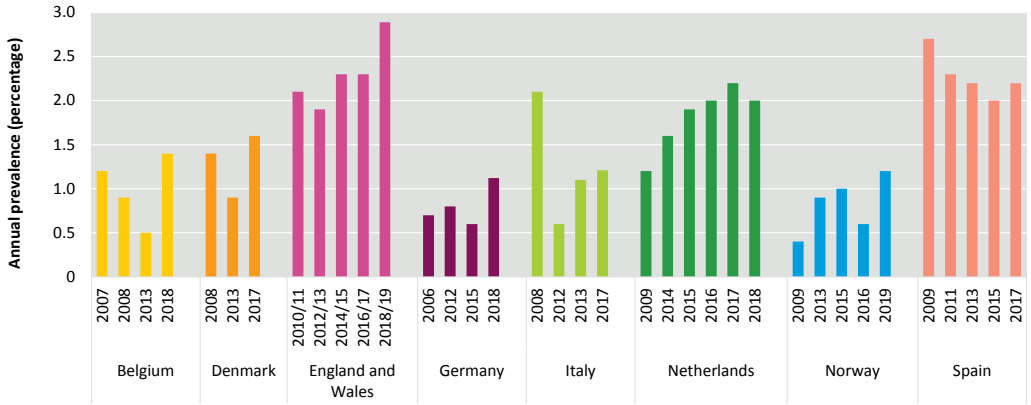
FIG. 16 Cocaine and "crack" cocaine use among adults (18 and older), by sociodemographic characteristics, United States, 2019



Source: United States, Substance Abuse and Mental Health Services Administration, Results from the 2019 National Survey on Drug Use and Health: Detailed Tables (Rockville, Maryland, Center for Behavioral Health Statistics and Quality, 2020.

Note: The data on past-year "crack" cocaine use among Asian and American Indian or Alaska Native were of low precision and not reported. Such use among college graduates was negligible.

FIG. 18 Cocaine use, countries in Western and Central Europe that reported recent data



Source: UNODC, responses to the annual report questionnaire.

Indications of increasing cocaine use in Western and Central Europe

In 2019, an estimated 5 million people in Europe, or about 0.9 per cent of the population aged 15–64, had used cocaine in the past year. However, cocaine use is much higher in Western and Central Europe than in Eastern and South-Eastern Europe (0.3 per cent, or 580,000 users).

In 2019 in Western and Central Europe, 1.4 per cent, or 4.4 million people aged 15–64, were estimated to have used cocaine in the past year. Many countries in the subregion, especially those with a high prevalence of cocaine use, such as England and Wales, Germany and Italy, have reported an increase in cocaine use in their recent surveys, while others have reported stable trends at high levels.

The use of "crack" cocaine, although still uncommon, is reported in some countries in the subregion.[91] In France, the number of high risk "crack" cocaine users was estimated at 43,916 in 2018, an increase from the 7,520 estimated in 2010, while the number of people reported in treatment for "crack" cocaine in the country doubled, from 3,388 in 2010 to 6,921 in 2018.[92] In England, the prevalence of crack cocaine was estimated at 5.10 per 1,000 population aged 15–64 in the period 2016–2017, which represents a stabilization after the increasing trend observed in the fiscal years 2011/12 (4.8 per 1000 population) and 2013/14 (5.2 per 1000 population). In England, "crack" cocaine was the primary drug of use of 7.6 per cent of people entering treatment for drug use disorders in 2018, and it was the most common secondary substance reported among people in drug treatment.[93]

There is also evidence of an overall increase in the availability of high-purity cocaine, which has increased each year since 2009. In 2018, cocaine purity in the European Union was considered to be at its highest level for a decade; the average purity of cocaine at the retail level varied between 23 and 87 per cent across the European Union in 2018, however, with half of the countries reporting an average purity of between 53 and 69 per cent.[94]

According to the latest school survey, conducted in 32 countries in Europe in 2019, 1.9 per cent of students aged 15–16 reported cocaine use and about 1 per cent reported using "crack" cocaine in their lifetime, an estimate that has remained unchanged since 2011.[95]

91 EMCDDA, *European Drug Report 2020* (Luxembourg, Publications Office of the European Union, 2020).

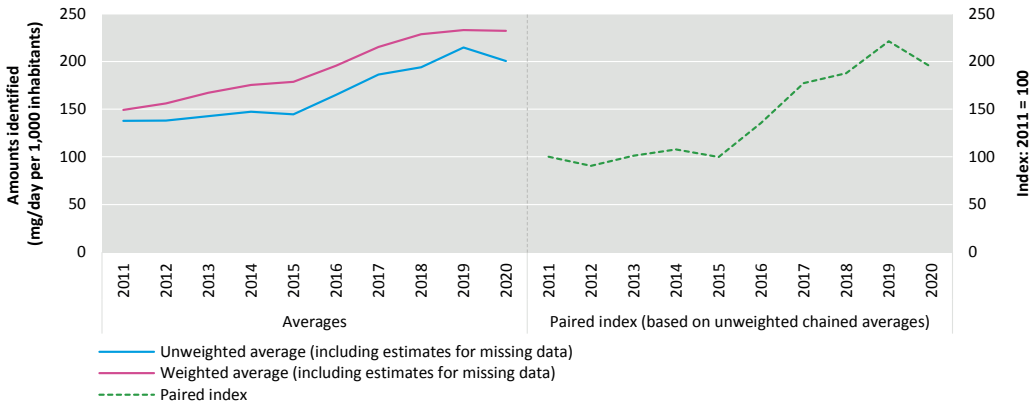
92 Eric Jansen and others, "Mixed methods to assess the use of rare illicit psychoactive substances: a case study", *Epidemiologic Methods*, vol 10, No. 1 (February 2021).

93 United Kingdom, Home Office and Public Health, "United Kingdom drug situation 2019: focal point annual report", 31 March 2021.

94 EMCDDA, *European Drug Report 2020*.

95 EMCDDA and European School Survey Project on Alcohol and Other Drugs, *ESPAD Report 2019: Results from the European School Survey Project on Alcohol and Other Drugs*, EMCDDA Joint Publications Series (Luxembourg, Publications Office of the European Union, 2020).

FIG. 19 Benzoylecgonine (cocaine metabolite) found in wastewater, 147 cities in Europe, 2011–2020



Source: UNODC calculations, based on wastewater data provided by the Sewage Analysis CORe group Europe.

Note: Average quantity of benzoylecgonine found in wastewater in 147 cities, weighted by the population of the sites: assumption of gradual increase or decrease in years in which no analysis took place in a city and there was no change since the latest available data. Owing to the change in the number of cities and sites, the information presented here is not comparable with that presented in the previous editions of the World Drug Report.

The overall increase in cocaine use in Europe is also confirmed in estimates of cocaine consumption from wastewater analysis; findings from 147 cities indicate an increase since 2011, becoming more pronounced after 2015.[96] This analysis shows that cocaine consumption varies considerably across the region, ranging from less than 1 mg to more than 700 mg of benzoylecgonine (cocaine metabolite)[97] per 100,000 inhabitants in 2020. Above-average per capita consumption was reported in cities in Western and Central Europe (notably in Belgium, France, the Netherlands, Spain, Switzerland and the United Kingdom). Below-average per capita consumption of cocaine was reported in cities in Northern Europe (notably in Finland and Sweden), Central Europe (Czechia) and South Eastern Europe (Bulgaria, Romania and Serbia).[98] Based on this analysis, cocaine consumption declined slightly in 2020, however, which was more marked in small cities (population of 100,000 or less) than in middle-sized cities (population between 100,000 and less than 1 million) and hardly noticeable in large cities (population of 1 million or more) in Europe.

In 2018, among those entering treatment for cocaine use disorders in the European Union, more than two thirds (79 per cent) reported the use of cocaine in combination with heroin or other opioids. The number of first-time entrants into treatment for cocaine use disorders has also increased in the past few years. Overall, cocaine was cited as the primary drug of concern by 75,000 people entering specialized drug treatment in 2018, of whom nearly half (34,000) were first-time entrants; in 2014, about 60,000 people entered drug treatment services for problems related to cocaine use, of whom less than half (27,000) were first-time entrants. Overall, Italy, Spain and the United Kingdom accounted for almost three quarters of all people treated for cocaine use disorders in specialized drug treatment services in the European Union in 2018.[99]

In Oceania, cocaine use is on the increase in Australia

In 2019, an estimated 730,000 people in Oceania, or 2.7 per cent of the population aged 15–64, had used cocaine in the past year.

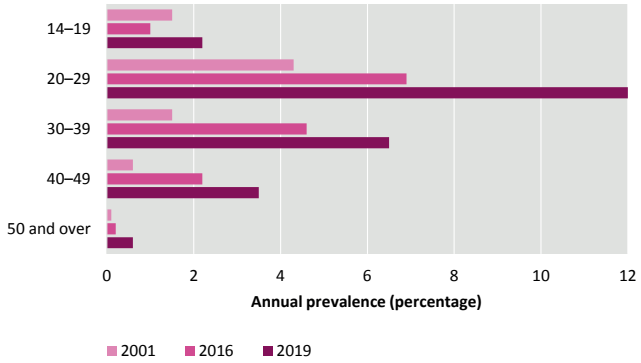
96 UNODC calculations based on data from the Sewage Analysis CORe group Europe. For details of the calculations, see the online methodological annex to the present report.

97 Benzoylecgonine is the main cocaine metabolite, a substance formed in the transformation of cocaine in the body; it is expelled through urination.

98 UNODC calculations based on data from the Sewage Analysis CORe group Europe.

99 EMCDDA, *European Drug Report 2020*.

FIG. 20 **Cocaine use among the population aged 14 years and older, by age group, Australia, 2001, 2016 and 2019**



Source: Australian Institute of Health and Welfare, National Drug Strategy Household Survey 2019 (Canberra, 2020).

In New Zealand, recent wastewater analysis showed low levels of cocaine consumption compared with other countries that have established cocaine markets. In the second quarter of 2019, the highest level of cocaine consumption in the country was estimated in Auckland territory (60 mg per day per 1,000 inhabitants); at the national level, 850 g of cocaine were estimated to be consumed per week, suggesting a small user base that likely reflects a low demand for and supply of cocaine. In the second quarter of 2020, cocaine consumption dropped considerably, to a weekly national average of 100 g per 1,000 inhabitants (or nearly 5 mg per day per 1,000 inhabitants), with the highest consumption, 10 mg per day per 1,000 inhabitants, found in Auckland territory.[100] This is approximately 20 times less than the average per capita consumption of cocaine in Europe.

In Australia, the past-year prevalence of cocaine use increased from 2.5 per cent of the population aged 14 and older in 2016 to 4.2 per cent (900,000 people) in 2019. Past-year cocaine use increased across all age groups, except among those aged 14–19. The increase in past-year cocaine use was driven mainly by men in those age groups but cocaine use among women in their 20s also increased in the same period. The proportion of men in their 20s using cocaine in the past 12 months almost doubled, from 7.3 per cent in 2016 to 14.4 per cent in 2019. Moreover, past-year cocaine use more than doubled independently of education level (with or without 12 years of education) and in all socioeconomic groups.[101] Past-month cocaine use among people who reported cocaine use in the past year also increased, from 10 per cent in 2016 to about 17 per cent in 2019.

The upward trend in cocaine use in Australia is confirmed by data from wastewater analysis. The estimated amount of cocaine consumed per year in Australia has increased considerably since the fiscal year 2016/17, from an estimated 3,057 kg of cocaine consumed in the country during that period to 5,675 kg in the fiscal year 2019/20. The wastewater analyses undertaken across Australia in August 2020 covered 56 per cent of the population, or some 13.2 million inhabitants, and were conducted at 20 wastewater treatment plants in state capitals and 35 regional areas, covering a wide range of catchment population sizes in the country.[102] Overall, cocaine consumption was estimated to be lower at regional sites than in state capitals, although cocaine consumption has increased in all states and territories, most notably Western Australia, where it had started from a relatively low base of consumption compared with other sites.

On average, nearly 600 mg of cocaine per 1,000 population per day was estimated to be consumed in Australia. Cocaine consumption was estimated to be higher in New South Wales than in the rest of the country, but consumption in some sites in Queensland, Victoria and the Australian Capital Territory was also relatively high. The comparison of these findings with those in Europe for 2019 suggests that per capita cocaine consumption based on wastewater analysis was much lower in Australia than in some European countries characterized by high per capita consumption levels, such as Denmark, the Netherlands, Spain and the United Kingdom.[103] While the COVID-19 pandemic has had an initial impact on cocaine consumption in some states and territories in Australia, notably the state capital sites, with the easing of movement restrictions in the latter part of 2020, cocaine consumption appears to have increased sharply in the Australian Capital Territory and Tasmania and returned to its pre-COVID-19 level in New South Wales.[104]

100 New Zealand Police, "Wastewater drug testing in New Zealand: quarter two 2020 findings – national overview" (December 2020).

101 Australian Institute of Health and Welfare, *National Drug Strategy Household Survey 2019* (Canberra, 2020).

102 Australian Criminal Intelligence Commission, University of Queensland and University of South Australia, *National Wastewater Drug Monitoring Program: Report 12*, 2021.

103 Australian Criminal Intelligence Commission, University of Queensland and University of South Australia, *National Wastewater Drug Monitoring Program: Report 10*, 2020.

104 Australian Criminal Intelligence Commission, University of Queensland and University of South Australia, *National Wastewater Drug Monitoring Program: Report 12*, 2021.

AMPHETAMINE-TYPE STIMULANTS

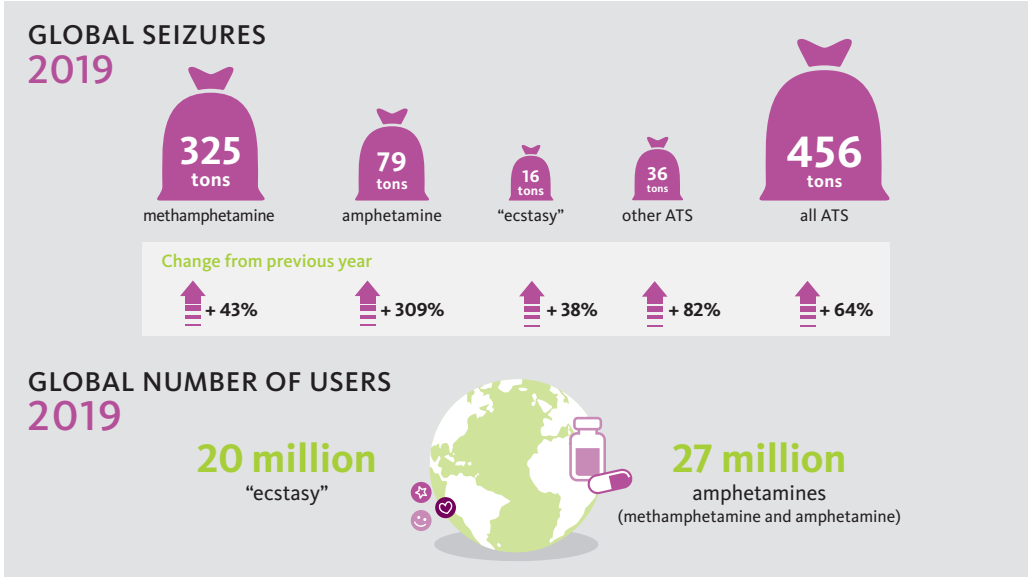
Supply of amphetamine-type stimulants continues to be dominated by methamphetamine

The manufacture of ATS continues to be dominated by methamphetamine at the global level. In the period 2015–2019, close to 24,000 clandestine laboratories used in the manufacture of ATS[1] were reported to have been detected or dismantled worldwide (45 countries). More than 95 per cent of them had been manufacturing methamphetamine; 2 per cent, amphetamine; 1 per cent, "ecstasy"; and the remainder other stimulants.

Quantities of ATS seized have continued to increase and reached a record high in 2019

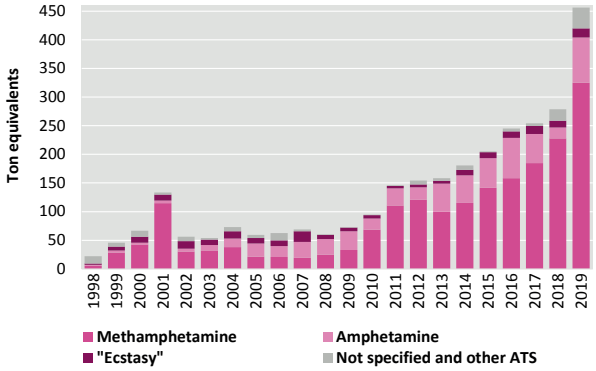
The year 2019 saw record quantities of ATS seized and a 64 per cent increase compared with a year earlier, the highest annual growth rate since 2001. The increase in the quantities of ATS seized over the past decade was primarily due to an almost tenfold increase in the quantities of methamphetamine seized over the period 2009–2019, while the quantities of "ecstasy" and of amphetamine seized doubled.

In the period 2015–2019, methamphetamine accounted for 72 per cent of the total quantity of ATS seized globally,



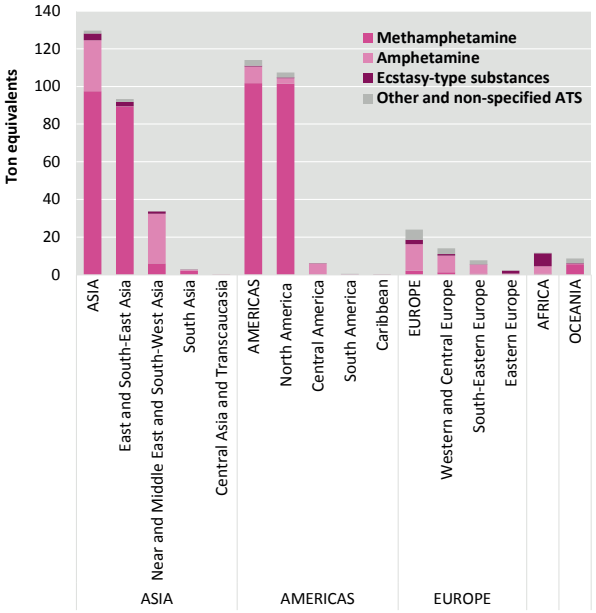
105 The category of ATS "laboratories detected", as defined in the UNODC annual report questionnaire, includes laboratories where ATS were manufactured (including "kitchen laboratories"), as well as laboratories where the refining, tabletting, cutting and packaging took place, sites where the equipment or the chemicals required for the manufacture of ATS were stored and sites where equipment, packaging or the chemical waste related to the manufacture of ATS was dumped.

FIG. 21 Global quantities of amphetamine-type stimulants seized, 1998–2019



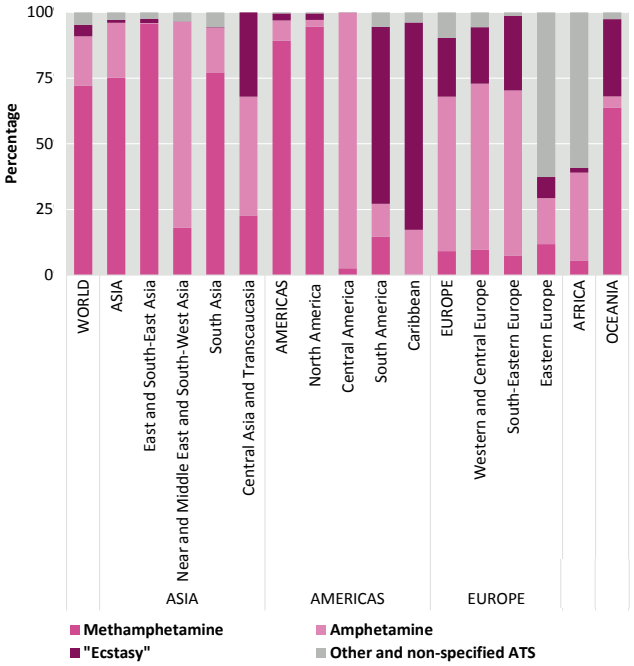
Source: UNODC, responses to the annual report questionnaire.

FIG. 22 Average annual quantities of amphetamine-type stimulants seized, by region and subregion, 2015–2019



Source: UNODC, responses to the annual report questionnaire.

FIG. 23 Distribution of average annual quantities of amphetamine-type stimulants seized, by region and subregion, 2015–2019



Source: UNODC, responses to the annual report questionnaire.

followed by amphetamine (19 per cent) and "ecstasy" (4 per cent). The rest (5 per cent) was accounted for by other stimulants, including former synthetic NPS such as mephedrone, MDPV and methylone (0.5 per cent of the total).

While the number of countries and territories reporting seizures of amphetamine and "ecstasy" has remained relatively stable over time (92 and 101 countries and territories, respectively, in the years 2015 and 2019), the number of countries and territories reporting seizures of methamphetamine rose from 79 in the period 2005–2009 to 111 in the period 2015–2019, suggesting a significant increase in the geographical spread of methamphetamine trafficking at the global level.

Despite this geographical spread, about half of the global quantities of the three main ATS are seized in just three countries: in the case of methamphetamine, that is the

United States, followed by Thailand and Mexico (47 per cent of all methamphetamine seized in the period 2015–2019); in the case of amphetamine, that is Saudi Arabia, followed by Guatemala and Turkey (45 per cent); and in the case of "ecstasy", that is the United States, followed by Australia and Turkey (54 per cent).

Different substances dominated the quantities of ATS seized in different parts of the world over the period 2015–2019: methamphetamine in North America, East and South-East Asia, South Asia and Oceania; amphetamine in the Near and Middle East/South-West Asia, Europe, Africa and Central America; and "ecstasy" in South America and the Caribbean.

Methamphetamine supply

Manufacture of methamphetamine is becoming increasingly complex as a result of improved precursor control

There is still a significant geographical divide in the types of precursors used in the manufacture of methamphetamine. Most of the methamphetamine manufactured in Asia, Oceania, Africa and in many parts of Europe continues to be based primarily on ephedrine and pseudoephedrine as the key precursor chemicals. While manufacture of methamphetamine in North America is now based primarily on P-2-P and a number of its precursor chemicals; in Western Europe, the P-2-P precursors APAAN, APAA and MAPA appear to be frequently used, most notably in large industrial-scale laboratories in Belgium and the Netherlands that are used not only for the manufacture of amphetamine but, increasingly, also for the manufacture of methamphetamine.[106, 107] The relatively easy availability of such P-2-P "designer precursors" in Western Europe (frequently imported from China) may have favoured the expansion of clandestine methamphetamine manufacture in the subregion in recent years.[108]

Thus, in contrast to previous decades, when methamphetamine was almost exclusively manufactured across the world from diverted ephedrine and pseudoephedrine, seizures of precursors suggest that, in a number of countries, the manufacture of methamphetamine now begins with P-2-P (also known as BMK) that is typically manufactured in clandestine laboratories using precursor chemicals that are not yet under international control.[109] In parallel, there have been attempts to illicitly manufacture ephedrine or pseudoephedrine from licit chemicals such as propiophenone and, in parts of Asia, notably Afghanistan, there are indications that over-the-counter purchases of ephedrine and pseudoephedrine have been replaced by the illicit manufacture of ephedrine from the locally grown *Ephedra* plant as the key starting material for the clandestine manufacture of methamphetamine.[110]

At the same time, seizure data suggest that there continue to be shifts in the chemical pre-precursors used to manufacture methamphetamine.[111] Expressed in methamphetamine equivalents, the largest amounts of methamphetamine precursors seized in 2019 were made up of the P-2-P "designer precursor" APAA, which could have been used to manufacture some 2.6 tons of methamphetamine. This was followed by ephedrine (sufficient for the manufacture of 2.2 tons of methamphetamine), P-2-P (2.2 tons) (mostly manufactured out of non-controlled chemicals), the P-2-P precursor phenylacetic acid (2.1 tons) (an internationally controlled substance that, however, is itself partly illicitly manufactured)[112] and pseudoephedrine (1 ton, including preparations). In contrast to the previous year, when significant amounts of another P-2-P "designer precursor", APAAN, were seized (sufficient to manufacture some 10 tons of methamphetamine), no seizures of APAAN as such were reported in 2019, although illicitly manufactured APAAN may still be used in the manufacture of P-2-P.[113]

106 INCB, *Precursors and Chemicals Frequently Used in the Illicit Manufacture of Narcotic Drugs and Psychotropic Substances* (E/INCB/2020/4), and previous years.

107 UNODC, responses to the annual report questionnaire.

108 EMCDDA and Europol, *EU Drug Markets Report 2019* (Luxembourg, Publications Office of the European Union, 2019).

109 INCB, *Precursors and Chemicals Frequently Used in the Illicit Manufacture of Narcotic Drugs and Psychotropic Substances* (E/INCB/2020/4).

110 EMCDDA, *Emerging Evidence of Afghanistan's Role as a Producer and Supplier of Ephedrine and Methamphetamine*, European Commission for funding the EU4 Monitoring Drugs (EU4MD) special report (Luxembourg, Publications Office of the European Union, 2020).

111 UNODC, *World Drug Report 2020*, booklet 4, *Cross-Cutting Issues: Evolving Trends and New Challenges* (United Nations publication, 2020).

112 INCB, *Precursors and Chemicals Frequently Used in the Illicit Manufacture of Narcotic Drugs and Psychotropic Substances* (E/INCB/2020/4).

113 UNODC calculations based on INCB, *Precursors and Chemicals Frequently Used in the Illicit Manufacture of Narcotic Drugs and Psychotropic Substances* (E/INCB/2020/4).

Interception of methamphetamine is now concentrated on the substance rather than on its precursors

While the quantities of methamphetamine seized have increased rapidly over the past two decades, notably over the past decade, a large increase in the quantities intercepted of internationally controlled chemicals used in the manufacture of methamphetamine was seen only until 2011; thereafter, the amounts seized have been fluctuating at much lower levels.

In 2011, the quantities of internationally controlled precursors seized would have been sufficient to manufacture some 700 tons of methamphetamine, or almost seven times the quantities of methamphetamine seized (111 tons) in that year. By contrast, in 2019, the amounts of internationally controlled precursors seized could not have produced more than 10 tons of methamphetamine, equivalent to just 3 per cent of the quantities of methamphetamine seized in that year (325 tons). This trend may be the result of different dynamics, notably the shift to the use of non-controlled pre-precursors to manufacture P-2-P and subsequently manufacture methamphetamine and the possible lower priority of law enforcement in the interception of precursors. Ever larger quantities of non-controlled chemicals are now being used in the manufacture of methamphetamine, in particular in North America and Western and Central Europe. At the same time, there have been frequent shifts in the pre-precursors used, as a result of their controls at the national and the international levels, including shifts from APAAN to APAA and then to MAPA and partly also to EAPA.

Recent changes in the use of methamphetamine precursors in response to international control

Following the scheduling at the international level of APAAN in 2014 and APAA in 2019, the non-controlled precursors of P-2-P subsequently encountered in the illicit manufacture of methamphetamine (and amphetamine) mainly belonged to the chemical groups of esters of *alpha*-phenylacetoacetatic acid, such as MAPA, and derivatives of P-2-P methyl glycidic acid; these chemicals are "designer precursors" that do not have any known legitimate uses other than for limited research purposes.[a]

While MAPA was included in Table I of the United Nations Convention against Illicit Traffic in Narcotic Drugs and Psychotropic Substances of 1988, effective 3 November 2020, other esters of that acid and derivatives of P-2-P methyl glycidic acid have not yet been placed under international control.[a] Preliminary data suggest that, before MAPA was under international control, close to 28 tons of the substance were seized in Europe alone in 2019,[a] which would have been sufficient to manufacture more than 14 tons of methamphetamine (range: 12–18 tons), thus exceeding global seizures of all other internationally controlled methamphetamine precursors in 2019.[b]

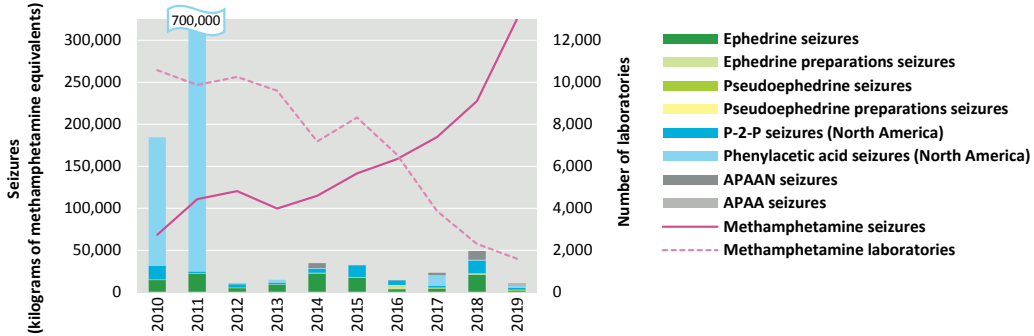
Once MAPA became increasingly scrutinized in 2020, traffickers appear to have started showing an interest in other substances, including EAPA,[a] which is covered by the limited international special surveillance list.[c] Moreover, other chemicals that are not under international control, such as benzaldehyde and nitroethane, are used in the manufacture of 1-phenyl-2-nitropropene, an intermediate chemical that can be used to manufacture methamphetamine;[a] this has been observed in Mexico.[c]

a INCB, *Precursors and Chemicals Frequently Used in the Illicit Manufacture of Narcotic Drugs and Psychotropic Substances* (E/INCB/2020/4).

b UNODC calculations based on INCB, *Precursors and Chemicals Frequently Used in the Illicit Manufacture of Narcotic Drugs and Psychotropic Substances* (E/INCB/2020/4).

c INCB, *Precursors and Chemicals Frequently Used in the Illicit Manufacture of Narcotic Drugs and Psychotropic Substances* (E/INCB/2019/4).

FIG. 24 Global quantities of methamphetamine and of internationally controlled precursors used in the manufacture of methamphetamine seized and number of methamphetamine laboratories dismantled, 2010–2019

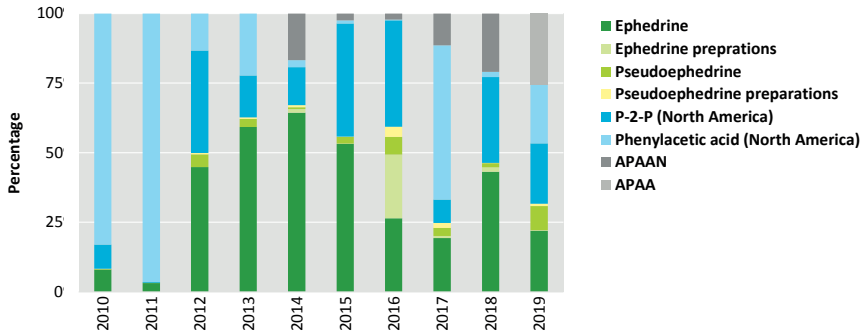


Source: UNODC calculations based on INCB, *Precursors and Chemicals Frequently Used in the Illicit Manufacture of Narcotic Drugs and Psychotropic Substances* (E/INCB/2020/4), and previous years, and on responses to the annual report questionnaire.

Notes: Only internationally controlled precursor chemicals used in the manufacture of methamphetamine are listed here; P-2-P and its precursor phenylacetic acid are shown only for North America as P-2-P and its precursors are still mainly used in the manufacture of amphetamine in other parts of the world. APAA and APAAN, precursors for P-2-P, are used in the manufacture of both amphetamine and methamphetamine. For the conversion of precursor chemicals into methamphetamine equivalents, the midpoints of the ratios reported by INCB were applied (1.5:1 for ephedrine, pseudoephedrine and phenylacetic acid, 1.25:1 for P-2-P and 1.9:1 for APAAN and APAA); for the conversion of ephedrine preparations into ephedrine or of pseudoephedrine preparations into pseudoephedrine (prior to the conversion into methamphetamine equivalents), a ratio of 5:1 was used, suggesting that a tablet of 30 mg of ephedrine may weigh some 150 mg or a tablet of 50 mg of ephedrine may weigh some 250 mg in total.

The category of "methamphetamine laboratories", as defined in the UNODC annual report questionnaire, includes laboratories where methamphetamine was manufactured (including "kitchen laboratories"), as well as laboratories where the refining, tabletting, cutting and packaging took place, sites where the equipment or the chemicals required for the manufacture of methamphetamine were stored and sites where equipment, packaging or the chemical waste related to the manufacture of methamphetamine was dumped.

FIG. 25 Distribution of quantities seized of internationally controlled precursors used in the manufacture of methamphetamine, 2010–2019



Source: UNODC calculations based on INCB, *Precursors and Chemicals Frequently Used in the Illicit Manufacture of Narcotic Drugs and Psychotropic Substances* (E/INCB/2020/4), and previous years.

Note: Only internationally controlled precursor chemicals used in the manufacture of methamphetamine are listed here; P-2-P and its precursor phenylacetic acid are shown only for North America as P-2-P and its precursors are still mainly used in the manufacture of amphetamine in other parts of the world. APAA and APAAN, precursors for P-2-P, are used in the manufacture of both amphetamine and methamphetamine. For the conversion of precursor chemicals into methamphetamine equivalents, the midpoints of the ratios reported by INCB were applied (1.5:1 for ephedrine, pseudoephedrine and phenylacetic acid, 1.25:1 for P-2-P and 1.9:1 for APAAN and APAA); for the conversion of ephedrine preparations into ephedrine or of pseudoephedrine preparations into pseudoephedrine (prior to the conversion into methamphetamine equivalents), a ratio of 5:1 was used, suggesting that a tablet of 30 mg of ephedrine may weigh some 150 mg or a tablet of 50 mg of ephedrine may weigh some 250 mg in total.

Number of dismantled methamphetamine laboratories is decreasing while methamphetamine manufacture is spreading

A major trend over the past decade has been the reported decline in the number of detected methamphetamine laboratories, falling from some 10,600 in 2010 to close to 1,600 in 2019.[114, 115] This decline mostly reflects trends in North America and Asia, as the number of dismantled methamphetamine laboratories actually increased in Europe, Oceania and Africa over the period 2010–2019.

At the same time, data show that methamphetamine manufacture is already a widespread phenomenon and is found in an increasing number of countries. In the period 2015–2019, about 23,000 clandestine methamphetamine laboratories were dismantled in 35 countries, although 51 countries were identified by Member States as countries of origin of the methamphetamine found on their markets. The overall increase in the number of reported source countries over the period 2016–2019 compared with the preceding five-year period (2010–2014) was mainly the result of an increase in the number of reported source countries in Africa (five newly reported countries), suggesting a possible spread of methamphetamine manufacture in Africa. In addition, qualitative information based on expert reports from Member States points to an increase at the global level in the manufacture of methamphetamine over the period 2010–2019.[116]

This suggests that, although the overall number of dismantled laboratories has been falling, the manufacture of methamphetamine may have spread in geographical terms and may have started to become a global phenomenon. A possible shift towards fewer laboratories with greater output in parallel to a general shift in manufacture to countries with more limited interdiction capacities may explain the decrease in the number of laboratories dismantled when other indicators point to an expansion of the methamphetamine market.[117]

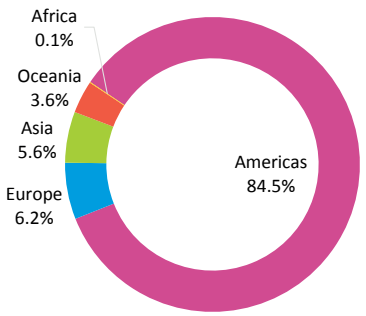
114 This category as defined in the UNODC annual report questionnaire, includes laboratories where methamphetamine was manufactured (including "kitchen laboratories"), as well as laboratories where the refining, tabletting, cutting and packaging took place, sites where the equipment or the chemicals required for the manufacture of methamphetamine were stored and sites where the equipment, packaging or the chemical waste related to the manufacture of methamphetamine was dumped.

115 UNODC, responses to the annual report questionnaire.

116 UNODC calculations, based on responses to the annual report questionnaire.

117 UNODC, *World Drug Report 2020*, booklet 3, *Drug Supply* (United Nations publication, 2020).

FIG. 26 **Distribution of detected methamphetamine laboratories, 2015–2019**



Source: UNODC, responses to the annual report questionnaire.

Note: The total number of detected methamphetamine laboratories over the period 2015–2019 amounted to 22,657. This category, as defined in the UNODC annual report questionnaire, includes laboratories where methamphetamine was manufactured (including "kitchen laboratories"), as well as laboratories where the refining, tabletting, cutting and packaging took place, sites where the equipment or the chemicals required for the manufacture of methamphetamine were stored and sites where equipment, packaging or the chemical waste related to the manufacture of methamphetamine was dumped.

In the period 2015–2019, most of the dismantled methamphetamine laboratories were reported in North America. In terms of the number of countries reporting dismantled laboratories, most were located in Europe (16 countries), followed by Asia (10), the Americas (5), Oceania (2) and Africa (2), while in terms of reported countries of origin of the methamphetamine that was seized in the period 2015–2019, most were located in Asia (19 countries) and Europe (19), followed by the Americas (7) and Africa (6).

Global methamphetamine manufacture appears to be declining in "traditional" countries of manufacture while increasing in neighbouring countries

Most detected methamphetamine laboratories continue to be reported in North America, mainly in the United States, where 890 methamphetamine laboratory incidents were reported in 2019 (56 per cent of the global total), followed by Mexico (43 laboratories) and Canada (18 laboratories). Based on the size of the laboratories dismantled, however, the overall output of domestic methamphetamine manufacture in the United States seems to be quite small compared with several of the

large-scale, industrial-sized laboratories found in other parts of the world, such as in Mexico and in East and South-East Asia.

Domestic manufacture of methamphetamine in the United States continues to decline while imports from Mexico continue to rise

The overall number of clandestine methamphetamine laboratories detected in the United States fell by 94 per cent over the period 2010–2019. The majority of the laboratories detected in 2019 were "kitchen laboratories" (85 per cent), which produce two ounces (roughly 56 g) or fewer per production cycle for local demand.[118] The number of dismantled industrial-scale "super laboratories", namely, those manufacturing at least 10 pounds (roughly 4.5 kg) of methamphetamine per production cycle, declined in the United States, from 245 in 2001[119] to 11 in 2018[120] (latest year available). There has also been a major geographical shift in the manufacture of methamphetamine within the United States over the past two decades, from the south-west to the north-east of the country.[121]

Geographical shifts in methamphetamine manufacture continue in both South-West Asia and East and South-East Asia

Similar to the situation in North America, data from Asia show a decline in the number of methamphetamine laboratories reported dismantled in recent years, going hand in hand with marked increases in the quantities of methamphetamine seized. As in North America, it seems that such trends may point to geographical shifts in the manufacture of methamphetamine in both South-West Asia and East and South-East Asia. Both China and Iran (Islamic Republic of), which accounted for the bulk of the dismantled methamphetamine laboratories in Asia in the period 2015–2019, reported decreasing numbers of methamphetamine laboratories dismantled in recent years, alongside an apparent expansion of methamphetamine manufacture in neighbouring countries.

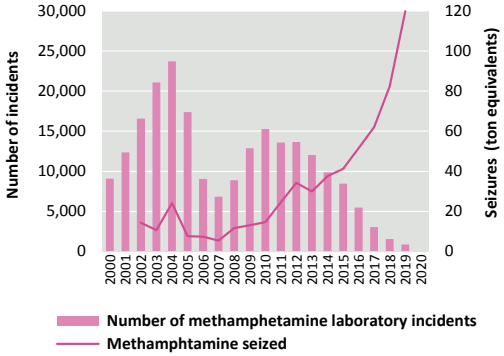
118 United States, Department of Justice, Drug Enforcement Administration, *2020 National Drug Threat Assessment* (March 2021).

119 United States, Department of Justice, Drug Enforcement Administration, *2006 National Drug Threat Assessment (January 2006).*

120 UNODC, responses to the annual report questionnaire.

121 United States, Department of Justice, Drug Enforcement Administration, *2020 National Drug Threat Assessment*, and previous years.

FIG. 27 **Methamphetamine laboratory incidents and quantities of methamphetamine seized, United States, 2000–2019**



Sources: United States, Department of Justice, Drug Enforcement Administration, 2020 Drug Threat Assessment (March 2021); and UNODC, responses to the annual report questionnaire.

Note: "Methamphetamine laboratory incidents" refers to the number of dismantled methamphetamine laboratories as well as the number of identified dumpsites related to the manufacture of methamphetamine and seizures of chemicals or equipment related to the manufacture of methamphetamine. This definition thus corresponds to the definition of "methamphetamine laboratories detected" used in the UNODC annual report questionnaire.

In 2015, almost all of the methamphetamine found in the Islamic Republic of Iran was manufactured domestically in clandestine laboratories and about 10 per cent of the Iranian methamphetamine exports were smuggled to neighbouring Afghanistan. Manufacturing and trafficking patterns changed in subsequent years: the amount of methamphetamine manufactured in Afghanistan increased and, for 2019, the Islamic Republic of Iran reported that Afghan methamphetamine accounted for almost 90 per cent of all methamphetamine found on the Iranian market, as Afghan smugglers were able to capture a larger part of the methamphetamine market in the region and beyond.[122] An analysis of significant individual drug seizures shows that over the period 2011–2018 most of the methamphetamine seized in the Islamic Republic of Iran was seized in the central and western parts of the country, while over the period 2019–2020 most was seized in the provinces along the country's eastern border.[123]

122 UNODC, responses to the annual report questionnaire.

123 UNODC, Drugs Monitoring Platform.

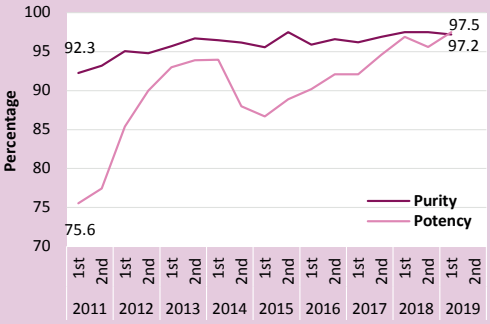
Shifts in manufacture of methamphetamine have continued in North America

Improved precursor control (including with the Chemical Diversion and Trafficking Act of 1988, the Domestic Chemical Diversion and Control Act of 1993 and in particular the Combat Methamphetamine Epidemic Act of 2005) regulating over-the-counter sales of methamphetamine precursor chemicals such as ephedrine preparations and pseudoephedrine, and ongoing efforts to dismantle laboratories seem to have acted as a deterrent to large-scale domestic methamphetamine manufacture in the United States over the last 15 years.[a] This approach seemed to have worked well initially, as domestic groups involved in methamphetamine manufacture in the United States (largely dominated by motorcycle gangs at the time) had limited chemical skills and were not in a position to seek alternative methods of manufacture,a helping to reduce the domestic market for methamphetamine in the first decade of the new millennium. Annual prevalence of methamphetamine use fell from 0.7 per cent of the population aged 12 and older in 2002 to 0.3 per cent in 2008.[b] Nonetheless, since 2010, the decrease in the domestic manufacture of methamphetamine in the United States has been more than offset by increasing imports of the drug from Mexico. A number of indicators have pointed to an expansion of the methamphetamine market within the United States, both in terms of supply of (sharply rising amounts seized and falling purity-adjusted prices) and demand for (rising prevalence of use, positive tests among the general workforce, treatment admissions and deaths) the drug.[a]

The introduction of similar legislation in Mexico in 2008 to prevent over-the-counter sales and the diversion of ephedrine preparations and pseudoephedrine for the manufacture of methamphetamine, however, has not had the same impact as in the United States; instead, it has prompted Mexican organized crime groups to switch from using the ephedrine or pseudoephedrine method to the P-2-P-based method in the manufacture of methamphetamine. Initially, this went in parallel with the manufacture of a poorer quality product, but as the use of the P-2-P method in the methamphetamine found on the United States markets increased (rising from 1 per cent in 2007 to 37 per cent in the fourth quarter of 2009),[c] the overall potency[e] of methamphetamine found on the United States market declined, from 96 per cent in 2007 to 64 per cent in 2009.[c] Without further purification at that time, the use of P-2-P allowed only for the manufacture of a less potent methamphetamine-racemate instead of the more potent *d*-methamphetamine that could be manufactured from ephedrine or pseudoephedrine. Manufacturers tried to compensate for this apparent shortcoming by increasing the purity[e] of methamphetamine: the purity of the methamphetamine found on the United States market rose from about 40 per cent in 2007 to close to 70 per cent in 2009.[c]

According to United States authorities, the chemical expertise of Mexican organized crime groups improved further and they eventually succeeded in manufacturing highly potent *d*-methamphetamine from P-2-P, a skill that is now also sought after by criminal groups in countries outside the Americas.[f] The reported purity of methamphetamine in the United States rose from 92 per cent in the first half of 2011[g] to 97 per cent in the first quarter of 2019,[a] while the potency of the drug rose from 76 per cent[g] to almost 98 per cent[a] over the same period. This indicates an improvement in the know-how of the organized crime groups and an overall increase in the supply of methamphetamine in the United States.[a] The analysis of seizure data also suggests that, by the first half of 2019, 99 per cent of the methamphetamine on the United States market was manufactured using the P-2-P-based method, mainly

Methamphetamine purity and potency, United States, 2011–2019



Source: United States, Department of Justice, Drug Enforcement Administration, *Drug Threat Assessment 2020* (March 2021), and previous years.

Note: "1st" refers to the first semester of the year; "2nd" refers to the second semester of the year.

out of non-controlled precursors of P-2-P, typically imported from China.[a]

The spread of methamphetamine use within the United States to areas where the dangers related to the use of the substance have been less known, such as the north-east of the country, together with increases in purity and potency, appears to have further increased the risk of overdose and, ultimately, of death.[a]

The annual prevalence of methamphetamine use in the United States doubled, from 0.4 per cent of the population aged 12 and above in 2010[h] to 0.8 per cent in 2019,[i] while the number of deaths attributed to the use of psychostimulants (mostly methamphetamine) increased at a much faster pace (sixfold), from 1,214 to 7,525, over the same period. Including deaths attributed to the use of psychostimulants that also involved opioids such as fentanyls, the number of psychostimulant-related deaths increased even more (ninefold), from 1,854 to 16,167 deaths over the same period.[j]

a United States, Department of Justice, Drug Enforcement Administration, *2020 National Drug Threat Assessment* (March 2021).

b United States, Center for Behavioral Health Statistics and Quality, *Results from the 2014 National Survey on Drug Use and Health: Detailed Tables* (Rockville, Maryland, Substance Abuse and Mental Health Services Administration, 2015).

c UNODC, *World Drug Report 2010* (United Nations publication, 2010).

d Potency is defined as the measure of drug activity in terms of the dosage required to exert an effect on the body and is measured by the amount of the highly potent d-isomer present in the drug or substance.

e Purity is defined as the measure of the amount of an illicit substance present in a sample compared with the amount of other substances present in the sample, such as adulterants, diluents and solvents.

f UNODC meeting with law enforcement experts from Belgium and the Netherlands on the impact of COVID-19 on ATS manufacture, 22 February 2021.

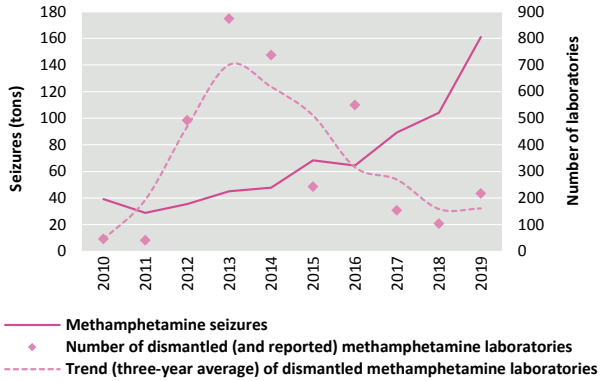
g United States, Department of Justice, Drug Enforcement Administration, *2016 National Drug Threat Assessment* (November 2016).

h United States, Center for Behavioral Health Statistics and Quality, *Results from the 2010 National Survey on Drug Use and Health: Detailed Tables* (Rockville, Maryland, Substance Abuse and Mental Health Services Administration, 2012).

i United States, Center for Behavioral Health Statistics and Quality, *Results from the 2019 National Survey on Drug Use and Health: Detailed Tables* (Rockville, Maryland, Substance Abuse and Mental Health Services Administration, 2020).

j United States, National Institute on Drug Abuse, "Overdose death rates", 29 January 2021.

FIG. 28 **Number of methamphetamine laboratories dismantled and quantities of methamphetamine seized, Asia, 2010–2019**



Source: UNODC, responses to the annual report questionnaire.

Manufacture of methamphetamine in Afghanistan appears to have taken place despite massive strikes against methamphetamine laboratories in the country in 2019. In May 2019, the Afghan National Defense and Security Forces, supported by the United States Forces in Afghanistan, destroyed 68 methamphetamine laboratories in a single day by means of air strikes undertaken in the Taliban-controlled areas of Farah and Nimroz, two provinces bordering the Islamic Republic of Iran;[124] they identified a further 32 targets, which were, however, not dismantled owing to concerns about possibly large numbers of civilian casualties.[125] For comparison, the dismantling of methamphetamine laboratories in the Islamic Republic of Iran peaked in 2013 (445 laboratories), falling to 215 in 2015 and 141 in 2017; no methamphetamine laboratories were reported to have been dismantled in either 2018 or 2019.[126]

A recent assessment by Afghan authorities suggests that laboratories manufacturing methamphetamine continue to operate in several of the country's western and

124 United Nations Assistance Mission in Afghanistan and Office of the United Nations High Commissioner for Human Rights, "Afghanistan: protection of civilians in armed conflict — special report: airstrikes on alleged drug-processing facilities, Farah, 5 May 2019" (Kabul, October 2019).

125 EMCDDA, *Emerging Evidence of Afghanistan's Role as a Producer and Supplier of Ephedrine and Methamphetamine.*

126 UNODC, responses to the annual report questionnaire.

southern provinces, most notably in several districts in the province of Herat bordering or close to the border with the Islamic Republic of Iran, in a number of districts in the neighbouring province of Farah, and in a few districts in central Helmand (Afghanistan's largest opium-producing province), as well as in one district in southern Ghor, one of the main areas where *Ephedra* plant is grown in the country. Manufacture of methamphetamine was also reported in one district in the northern province of Balkh. In most of those districts, the Taliban were also involved in the trafficking of opiates and methamphetamine. Their involvement in methamphetamine trafficking also seems to have spread to a number of districts in the central, eastern and north-eastern parts of Afghanistan.[127] Moreover, seizures of methamphetamine together with heroin were reported from Kandahar, in southern Afghanistan, and Nangarhar, in eastern Afghanistan, in 2020,[128] suggesting that trafficking in methamphetamine may have become a nationwide phenomenon in Afghanistan.

While methamphetamine manufacture in most Asian countries continues to be largely based on the use of synthetically manufactured pseudoephedrine or ephedrine as precursors,[129] reports from Afghanistan suggest that *Ephedra* plant (mostly grown in central Afghanistan) has been increasingly used as a starting material since 2016.[130, 131] By 2018, most of the methamphetamine in Afghanistan was manufactured using ephedra.[132] This replaced the original process of making methamphetamine from pseudoephedrine extracted from over-the-counter medicines, such as cough syrups and decongestants, imported or smuggled into the country from neighbouring Iran (Islamic Republic of) and Pakistan,[133] allowing Afghanistan to manufacture methamphetamine at a tenth of the cost reported from South-East Asia.[134] Thus, while the wholesale price of methamphetamine amounts to some $3,000 per kilogram in Myanmar, it is about $280 per kilogram in Afghanistan.[135]

Methamphetamine manufacture takes place not only across the eastern border of the Islamic Republic of Iran, in Afghanistan, but also across the country's western border.[136] In 2017, Iraqi security forces dismantled a rudimentary crystalline methamphetamine laboratory in Basra and another one in the city of Kirkuk.[137] Moreover, use of methamphetamine seems to have spread further in subsequent years[138, 139] partly fuelled by ongoing shipments of methamphetamine from the Islamic Republic of Iran into Iraq.[140, 141]

Patterns similar to those reported in the Islamic Republic of Iran are also found in China, which reported that, by 2018, methamphetamine found on the domestic market originated primarily in neighbouring countries (70 per cent in 2018). The main import country for methamphetamine appears to be Myanmar: some 98 per cent of all imported methamphetamine originated, departed or transited Myanmar before arriving in China in 2019.[142] While there were no reports from Myanmar of dismantled methamphetamine laboratories during 2019, information from Yunnan Province in China, bordering Myanmar, points to ever larger drug seizures over the past few years, suggesting an increase in illicit imports from Myanmar, including of methamphetamine. In 2020, 20.2 tons of drugs were seized in Yunnan Province, accounting for 36.3% of the total quantities of drugs seized in China as a whole.[143] Reports of individual seizures suggest that an increasing share of the methamphetamine seized in China has been seized in

127 Islamic Republic of Afghanistan, Ministry of Interior Affairs, Narcotics Survey and Analysis Directorate, *Poppy cultivation, Drug Production and Trafficking Analysis 2021* (May 2021).

128 UNODC, Drugs Monitoring Platform.

129 INCB, *Precursors and Chemicals Frequently Used in the Illicit Manufacture of Narcotic Drugs and Psychotropic Substances* (E/INCB/2020/4).

130 EMCDDA, *Emerging Evidence of Afghanistan's Role as a Producer and Supplier of Ephedrine and Methamphetamine*.

131 Kern Hendricks, "The wild shrub at the root of the Afghan meth epidemic", Undark, 20 May 2020.

132 Lynzy Billing, "Afghanistan's crystal meth boom is rooted in this plant: a shift to making the illicit drug from ephedra has caused output to soar", *Chemical and Engineering News*, vol. 99, No. 132 (April 2021).

133 EMCDDA, *Emerging Evidence of Afghanistan's Role as a Producer and Supplier of Ephedrine and Methamphetamine*.

134 Billing, "Afghanistan's crystal meth boom is rooted in this plant: a shift to making the illicit drug from ephedra has caused output to soar".

135 EMCDDA, *Emerging Evidence of Afghanistan's Role as a Producer and Supplier of Ephedrine and Methamphetamine*.

136 Danielle Woodward, "Iraq's growing drug problem: from corridor to producer", *Drug Addiction Now*, 24 January 2017.

137 Information made available by Iraq to the Subcommission on Illicit Drug Traffic and Related Matters in the Near and Middle East at its fifty-fifth session.

138 Ibid.

139 Allissa J. Rubin, "Iraq faces a new adversary: crystal meth", *New York Times*, 14 September 2019.

140 Arwa Damon and Mohammed Tawfeeq, "Iraq battles two killer epidemics at once: crystal meth and COVID-19", CNN, 7 April 2021.

141 UNODC, Drugs Monitoring Platform.

142 UNODC, responses to the annual report questionnaire.

143 National Narcotics Control Commission of China.

Yunnan province over the last decade,[144] pointing towards the growing importance of Myanmar as a key location for methamphetamine exports to China. Some of the methamphetamine manufactured in Myanmar is also destined for other countries in the region (including Bangladesh, the Lao People's Democratic Republic, India, Indonesia, Malaysia and Thailand) as well as to Australia and Japan.[145]

At the same time, the manufacture of methamphetamine is expanding around the Golden Triangle,[146] as well as in Cambodia and Viet Nam, partly as a result of large transnational organized crime syndicates moving from China to various other countries in the subregion in order to evade increasing law enforcement pressure in China in recent years[147, 148] and ensure illegal exports of methamphetamine to major high-value market destinations such as Australia, Japan, New Zealand and the Republic of Korea, as well as to the rest of East and South-East Asia.[149] While pseudoephedrine and ephedrine continue to be the main precursors used in South-East Asia, the example of a large-scale clandestine methamphetamine laboratory dismantled in 2019 in Viet Nam suggests that traffickers may have also started to use alternative precursors, such as P-2-P illicitly manufactured using APAA, to manufacture methamphetamine.[150]

Large-scale methamphetamine manufacture in Europe is embracing the North American methods of using alternative precursors

Europe accounted for 6 per cent of all methamphetamine laboratories dismantled worldwide over the period 2015–2019, with close to 90 per cent of all such laboratories dismantled in Czechia, followed by another 14 countries, including (in descending order of the number of laboratories dismantled) Germany, Poland, Austria and Slovakia.[151]

While most of the laboratories dismantled in Czechia continue to be "kitchen laboratories", recent years have seen the emergence of large-scale methamphetamine manufacture in Belgium and the Netherlands where, for example, three large crystalline methamphetamine manufacturing facilities (in which Mexican nationals were involved) were dismantled in 2019.[152] Most countries in Europe continued to report Czechia as the main country of origin of methamphetamine on their markets in the period 2015–2019, although since 2018 the Netherlands has emerged as the most frequently reported European trafficking hub (country of origin, departure or transit) of methamphetamine in Europe, ahead of Czechia. At the same time, the Netherlands emerged as the main European trafficking hub for methamphetamine found outside of Europe (although it still only ranked 18th as reported by non-European countries over the period 2015–2019).[153]

The manufacture of methamphetamine in small to mid-sized illicit laboratories in Czechia (and in most other European countries) continues to be mostly based on pseudoephedrine, which is extracted from pharmaceutical drugs often originating in Poland or Turkey.[154] By contrast, the large-scale laboratories found in Belgium and the Netherlands in 2019 had been manufacturing methamphetamine from (partly internationally non-controlled) precursors of P-2-P, using methods similar to those used in North America.[155] In 2018, the overall quantity of amphetamine and methamphetamine precursors seized in Europe was dominated by P-2-P (mostly illicitly manufactured) and APAAN; in 2019, such seizures were primarily of MAPA, P-2-P and APAA, mostly imported from China. The largest quantity of the different P-2-P precursor chemicals seized in total was reported by the Netherlands.[156]

There are also indications that, while the manufacture of other ATS may have declined in Europe in 2020, the manufacture of methamphetamine in both Belgium and the

144 UNODC, Drugs Monitoring Platform.
145 UNODC, responses to the annual report questionnaire.
146 The Golden Triangle is an area long associated with heroin manufacture. It is located where the borders of the Lao People's Democratic Republic, Myanmar and Thailand converge along the Mekong River. Nowadays, the area is also associated with the illicit manufacture of synthetic drugs, such as methamphetamine.
147 "Regional overview: Asia and Oceania", in UNODC, *Global Synthetic Drugs Assessment 2020* (United Nations publication, 2020).
148 UNODC, Regional Office for Southeast Asia and the Pacific, *Transnational Organized Crime in Southeast Asia: Evolution, Growth and Impact* (Bangkok, 2019).
149 UNODC, responses to the annual report questionnaire.
150 INCB, *Precursors and Chemicals Frequently Used in the Illicit Manufacture of Narcotic Drugs and Psychotropic Substances* (E/INCB/2020/4).
151 UNODC, responses to the annual report questionnaire.
152 EMCDDA and Europol, *EU Drug Markets Report 2019*.
153 UNODC, responses to the annual report questionnaire.
154 Ibid.
155 EMCDDA and Europol, *EU Drug Markets Report 2019*.
156 INCB, *Precursors and Chemicals Frequently Used in the Illicit Manufacture of Narcotic Drugs and Psychotropic Substances* (E/INCB/2020/4).

Netherlands has continued to increase. Preliminary data for the Netherlands suggest that the number of dismantled methamphetamine laboratories rose from 9 in 2019 to 32 in 2020. The management of manufacturing operations appears to remain in the hands of Dutch traffickers, although a South American workforce and expertise from Mexican chemists seem to be increasingly employed.[157] Based on media reports, while some law enforcement experts argue that there are indications that organized crime groups from Mexico may have already become more directly involved in the manufacture of methamphetamine in the Netherlands,[158] other sources, on the basis of analysis of recently divulged messages from the encrypted messaging platform EncroChat, suggest that, for the time being, such groups have an influence only on the recruitment of Mexican "cooks" and not, as yet, on the methamphetamine manufacturing business in Europe.[159]

Domestic manufacture of methamphetamine in Australia and New Zealand continues to decline while imports from outside Oceania increase

Oceania (Australia and New Zealand) accounted for 4 per cent of the global number of methamphetamine laboratories detected over the period 2015–2019, and 9 per cent of the total in 2019. Most methamphetamine laboratories dismantled in Oceania in 2019 continued to be reported mainly by Australia (91 methamphetamine laboratories), followed by New Zealand (54).[160]

Domestic manufacture of methamphetamine continues to be mostly on a small scale in Oceania: in 2019, only four laboratories dismantled in Australia (4 per cent of the total) were industrial-scale laboratories.[161]

The number of dismantled methamphetamine laboratories has shown a clear downward trend in Oceania over the past decade; in Australia, the number of dismantled laboratories in which ATS (excluding "ecstasy") were manufactured fell by 82 per cent between the fiscal years 2009/10 and 2018/19,[162, 163] while the number of methamphetamine laboratories dismantled in New Zealand declined by 50 per cent between 2011 and 2019.[164] This decline is in contrast to a ninefold increase in the quantity of methamphetamine seized in the two countries between 2010 and 2019 (a sixfold increase in Australia and a sixtyfold increase in New Zealand). Moreover, wastewater analysis suggests an overall increase in methamphetamine consumption Australia in recent years, from 8.4 tons in the fiscal year 2016/17 to 11.1 tons in 2019/20 (32 per cent increase),[165] suggesting an overall expansion of the market for methamphetamine in Oceania.

These trends suggest that domestic manufacture of methamphetamine is declining and that methamphetamine is increasingly imported into Oceania from overseas.[166]

In the industrial-scale laboratories dismantled in Australia, various precursor chemicals were used for the manufacture of P-2-P. The large-scale methamphetamine laboratories detected in Victoria in 2019, for example, had been used to convert MAPA into P-2-P for the subsequent manufacture of methamphetamine. By contrast, small-scale methamphetamine manufacture in Australia and New Zealand remains largely based on ephedrine and pseudoephedrine as the main precursors, although the prevalence of this method seems to be declining. In 2018, 90 per cent of the manufacture of methamphetamine in Australia was reported to have been based on ephedrine or pseudoephedrine (with only 7 per cent being P-2-P related), a proportion that had fallen to 78 per cent by 2019, while the use of P-2-P-related precursors increased. Most of the P-2-P was manufactured from MAPA (60 per cent), followed by sodium 2-methyl-3-phenyl-glycidate.[167] Nonetheless, the ongoing dominance of ephedrine and pseudoephedrine in the manufacture of methamphetamine in both Australia and New Zealand remains reflected in the fact that most of the methamphetamine precursors seized in recent years, including in 2019, were of ephedrine, followed by pseudoephedrine.[168]

157 UNODC meeting with law enforcement experts from Belgium and the Netherlands on the impact of COVID-19 on ATS manufacture, 22 February 2021.

158 Valentina Pop, "Mexican cartels are now cooking Chinese chemicals in Dutch meth labs", *Wall Street Journal*, 8 December 2020.

159 Audrey Travère, "Breaking bad in Europe: Mexican 'cooks' in service of Dutch gangs", Forbidden Stories.

160 UNODC, responses to the annual report questionnaire.

161 Ibid.

162 In Australia, the fiscal year is from 1 July to 30 June.

163 Australian Criminal Intelligence Commission, *Illicit Drug Data Report 2018–19* (Canberra 2020).

164 UNODC, responses to the annual report questionnaire.

165 Australian Criminal Intelligence Commission, University of Queensland and University of South Australia, *National Wastewater Drug Monitoring Program: Report 12*.

166 UNODC, responses to the annual report questionnaire.

167 Ibid.

168 INCB, *Precursors and Chemicals Frequently Used in the Illicit Manufacture of Narcotic Drugs and Psychotropic Substances* (E/INCB/2020/4).

Methamphetamine manufacture in Africa

Africa accounted for less than 0.1 per cent of the total number of methamphetamine laboratories dismantled worldwide in the period 2015–2019. The number of methamphetamine laboratories dismantled in Africa and reported to UNODC increased, however, from around 2 laboratories per year in the period 2014–2017 to 13 in 2018 (no data for 2019 have been reported to date).

Most of the methamphetamine laboratories reported in the period 2015–2019 were dismantled in South Africa, followed by Nigeria. However, a number of other African countries may have also been involved in the manufacture of the drug: countries including (in descending order of the number of mentions) Mozambique, the United Republic of Tanzania, the Democratic Republic of the Congo, Benin and other countries in West and Central Africa were mentioned as countries of origin of methamphetamine in the region. Ghana was one of the most-commonly reported departure countries for methamphetamine shipments seized in Africa. While no laboratories were reported dismantled in Ghana or in the other African countries identified as departure countries, it is possible that manufacturing is expanding outside of Nigeria and South Africa.

In contrast to other regions, the methamphetamine manufactured in Africa seems to be, to a significant extent, destined for overseas markets, in particular East and South-East Asia.[169] At the same time, there are also some indications that, since late 2019, some of the methamphetamine found in South Africa is also being smuggled from Afghanistan via Pakistan and countries of East and Southern Africa to South Africa, particularly the Western Cape Province. Thus, methamphetamine is currently trafficked into South Africa along two major transnational supply routes: one originating in Nigeria and used by Nigerian crime syndicates; and a second originating in Afghanistan that follows traditional heroin routes and is dominated by Pakistani drug trafficking syndicates. The methamphetamine trafficked along the second route is often transported together with heroin from South-West Asia. In addition, small amounts of methamphetamine sourced in East Asia are also trafficked into South Africa.[170] Given the abundant sources from abroad, local manufacturers of lower-quality methamphetamine in South Africa have apparently shifted their focus to the manufacture of methaqualone, MDMA and methcathinone instead.[171]

Methamphetamine manufactured in Africa continues to be based mainly on the use of ephedrine and pseudoephedrine as the key precursors,[172] while methamphetamine imported from Afghanistan into South Africa is often based on the *Ephedra* plant as the starting material.[173]

Global methamphetamine markets continue expanding but those in North America and East and South-East Asia continue to dominate

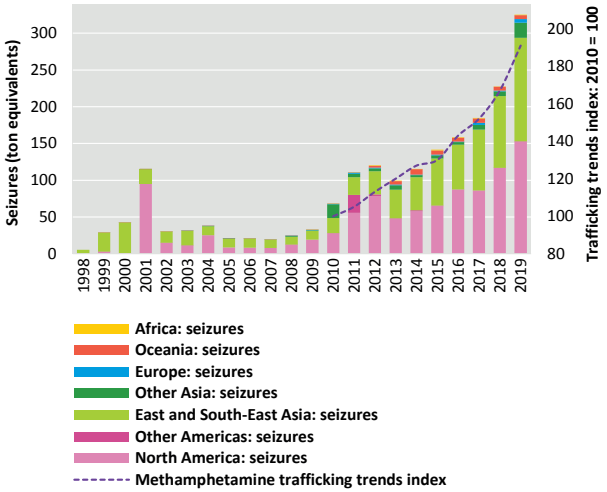
The information available globally on methamphetamine points to an expansion in the market over the past two decades, particularly since 2009. A number of indicators, including qualitative information on methamphetamine trafficking trends reported by Member States, data on drug treatment facilities, data on prevalence of use based on population surveys and price data, suggest that the global methamphetamine market has been expanding, in particular in the two largest markets, South-East Asia and North America. At the same time, most trafficking in methamphetamine continues to be intraregional.[174]

Methamphetamine continues to be seized mainly in North America and in East and South-East Asia, which accounted for 49 per cent and 43 per cent, respectively, of the global quantity of methamphetamine seized in the period 2015–2019.

The largest quantities of methamphetamine seized worldwide in 2019 (as in the previous year) were seized in the United States, followed, in descending order, by Thailand, Mexico, China and Myanmar. Marked increases in the quantities seized from 2018 to 2019 were reported by China, Iran (Islamic Republic of), Myanmar and the United States.[175]

169 UNODC, responses to the annual report questionnaire.
170 Ibid.
171 Jason Eligh, *A Synthetic Age: The Evolution of Methamphetamine Markets in Eastern and Southern Africa* (Geneva, Global Initiative against Transnational Organized Crime, 2021).
172 INCB, *Precursors and Chemicals Frequently Used in the Illicit Manufacture of Narcotic Drugs and Psychotropic Substances* (E/INCB/2020/4).
173 Eligh, *A Synthetic Age: The Evolution of Methamphetamine Markets in Eastern and Southern Africa.*
174 UNODC, responses to the annual report questionnaire.
175 Ibid.

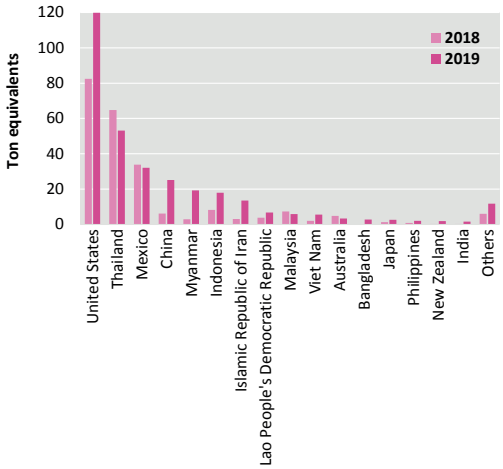
FIG. 29 Quantities of methamphetamine seized and reported trends in methamphetamine trafficking, 1998–2019



Source: UNODC, responses to the annual report questionnaire.

Note: The trafficking trends index is based on qualitative information on trends in methamphetamine trafficking reported by Member States. The trend line is calculated on the basis of the number of countries reporting increases minus the number of countries reporting decreases (2 points for "large increase", 1 point for "some increase", 0 points for "stable", -1 point for "some decrease" and -2 points for "large decrease").

FIG. 30 Countries reporting the largest quantities of methamphetamine seized, 2018–2019



Source: UNODC, responses to the annual report questionnaire.

Trafficking in methamphetamine continues to increase in North America

The vast majority of the methamphetamine seized in the Americas is seized in North America (99 per cent in 2019), where the quantity of the drug seized increased eightfold, to 153 tons, between 2009 and 2019. The United States accounted for 78 per cent of the methamphetamine seized in the subregion in 2019 and Mexico for 21 per cent.

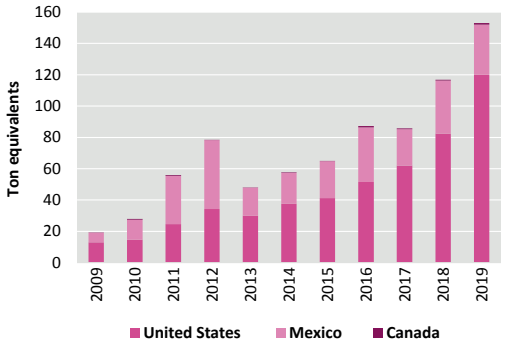
The growth of methamphetamine trafficking in North America has gone hand in hand with a diversification of the form in which methamphetamine is sold: (a) powder; (b) crystals; (c) solutions (mostly for smuggling purposes); and (d) tablets that resemble MDMA tablets or falsified pharmaceuticals, mainly falsified Adderall tablets, which typically contain a mixture of amphetamine and dextroamphetamine. These "product innovations" seem to be aimed at expanding the consumer base to non-traditional users of methamphetamine. Moreover, the mixing of fentanyls with other drugs, including methamphetamine, is an increasingly common practice. This practice has proved to be particularly harmful and has contributed to the sharp rise in methamphetamine-related deaths in recent years.[176]

Although the use of methamphetamine used to be concentrated in the south-west of the United States, methamphetamine seizures were reported in every state in the country in 2019. In general, methamphetamine still has a strong presence in the west, south-west and south-east of the United States. This has been linked to, among other things, the proximity of those regions to the country's south-western border with Mexico.[177] Mexican organized crime groups control the import and wholesale distribution of methamphetamine in the United States, while domestic retail distribution is controlled by both domestic criminal groups and Mexican criminal groups. According to United States authorities, almost all of the main criminal organizations in Mexico, including the Sinaloa Cartel, the Jalisco New Generation Cartel, the Juárez Cartel and La Linea, the Gulf Cartel, the Los Zetas Cartel and the Beltrán-Leyva Organization, seem to be

176 United States, Department of Justice, Drug Enforcement Administration, *2020 National Drug Threat Assessment.*

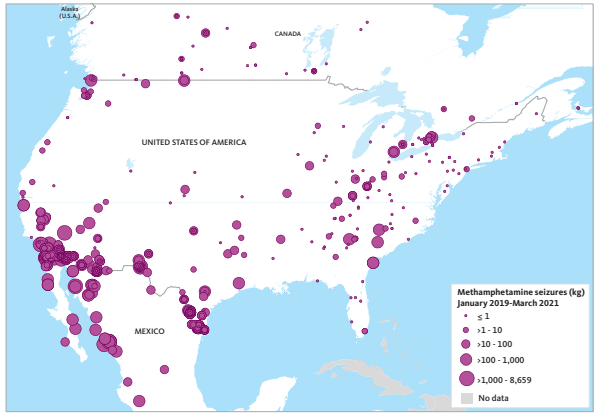
177 United States, Department of Justice, Drug Enforcement Administration, 2019 *National Drug Threat Assessment* (December 2019).

FIG. 31 Quantities of methamphetamine seized, North America, 2009–2019



Source: UNODC, responses to the annual report questionnaire.

MAP 10 Significant individual seizures of methamphetamine, North America, January 2019–March 2021



Source: UNODC, Drugs Monitoring Platform.

The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by the United Nations.

involved in the smuggling of methamphetamine to the United States. In parallel, outlaw motorcycle gangs continue to be involved in the distribution of methamphetamine within the country.[178] Recently, the presence of methamphetamine has been growing in regions, such as the north-east, where, historically, there was not a large market for the drug;[179] however, that methamphetamine seems to be, at least partly, sourced from local methamphetamine manufacture.[180]

The quantities of methamphetamine seized in Mexico increased fivefold over the period 2009–2019.[181] Concentrations of seizures take place along the Pacific coast, in territory with a strong presence of the Sinaloa Cartel and the Jalisco New Generation Cartel,[182, 183, 184] as well as close to the border with California, Arizona, New Mexico and Texas.[185] Meanwhile, most of the foreign nationals arrested in Mexico for methamphetamine trafficking in 2019 were nationals of the United States.[186]

The methamphetamine market in Canada has also been growing rapidly in recent years. The quantities of methamphetamine seized rose twelvefold over the period 2009–2019 and doubled between 2018 and 2019.[187] According to United States authorities, more people were arrested in Canada for possession of methamphetamine than of opioids in 2019 and the number of methamphetamine trafficking offences increased. This has been attributed, in part, to a decrease in methamphetamine prices resulting from an increase in the availability on the Canadian market of inexpensive methamphetamine manufactured in Mexico,[188] complementing domestically manufactured methamphetamine.[189]

Although most of the methamphetamine trafficked to North America is intended for markets within the subregion, smaller amounts of methamphetamine are also

178 United States, Department of Justice, Drug Enforcement Administration, *2020 National Drug Threat Assessment*.
179 United States, Department of Justice, Drug Enforcement Administration, 2019 National Drug Threat Assessment.
180 United States, Department of Justice, Drug Enforcement Administration, 2020 National Drug Threat Assessment.
181 UNODC, responses to the annual report questionnaire.
182 Victoria Dittmar, "Why the Jalisco Cartel does not dominate Mexico's criminal landscape", InSight Crime, 11 June 2020.
183 Infobae, "México: este es el mapa del narcotráfico en México a 10 meses de la llegada de López Obrador al poder", 18 October 2019.
184 Wilmarielys Agosto, "Mapa del narcotráfico en México: estos son los territorios más peligrosos y cómo se lo reparten los clanes de la droga", *El Cierre Digital*, 15 June 2020.
185 UNODC, Drugs Monitoring Platform.
186 UNODC, responses to the annual report questionnaire.
187 Ibid.
188 United States, Department of State, Bureau of International Narcotics and Law Enforcement Affairs, *International Narcotics Control Strategy Report*, vol. 1, *Drug and Chemical Control* (March 2021).
189 UNODC, responses to the annual report questionnaire.

trafficked from North America to other subregions, including other parts of the Americas, Oceania, East and South-East Asia and Western and Central Europe.

The United States, for example, was reported by countries and territories in Oceania (Australia and New Zealand), Asia (Japan, Mongolia, Philippines and Hong Kong, China) and Europe (Ireland and Italy) as a country of origin, departure or transit of methamphetamine in the period 2015–2019.[190] According to United States authorities, Asian criminal organizations are increasingly using the United States as a transit country for trafficking methamphetamine shipments to Asia and Oceania, often using Los Angeles-based import and export companies established or co-opted by Asian organized crime groups for such purposes.[191] While most methamphetamine enters the United States by land (91 per cent of the total in 2019), most of the methamphetamine shipped abroad is sent by mail (71 per cent) and by sea (29 per cent).[192]

Methamphetamine imports from Canada were reported in the United States, in Oceania (Australia and New Zealand) and, to a lesser extent, in South America (Chile), as well as in Europe (Iceland and Latvia) in the period 2015–2019.[193]

In addition to significant trafficking in methamphetamine from Mexico to the United States there was also some from Mexico to countries and territories in Oceania (New Zealand and Australia), Europe (Belgium, Spain and United Kingdom) and Asia (Philippines and Hong Kong, China) in the period 2015–2019.[194] Shipments of methamphetamine have also been intercepted en route from Mexico to various countries in Europe for final destinations in Asia or Oceania[195] or to the Netherlands for distribution in Europe.[196, 197] Other countries are also affected, however. A record seizure was made in July 2020 of 1.5 tons of methamphetamine that had been shipped from Mexico via a port in Croatia to Slovakia.[198, 199]

190 Ibid.

191 United States, Department of Justice, Drug Enforcement Administration, 2020 National Drug Threat Assessment.

192 UNODC, responses to the annual report questionnaire.

193 Ibid.

194 Ibid.

195 EMCDDA and Europol, *EU Drug Markets Report 2019*.

196 UNODC, *World Drug Report 2020*, booklet 3, *Drug Supply* (United Nations publication, 2020).

197 NL Times, "Mexican drug cartels pushing crystal meth in NO, Western Europe: report", 4 June 2019.

198 UNODC, Drugs Monitoring Platform.

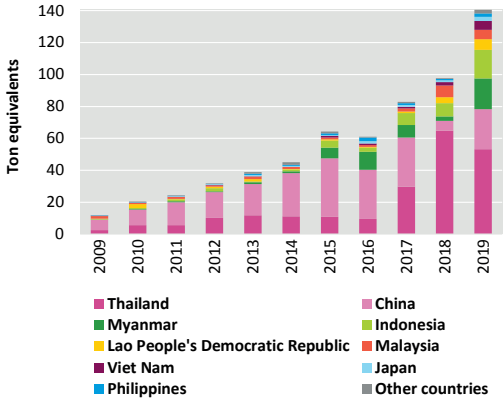
199 Robert Gearty, "Slovakia police dog sniffs out 2.26 B in methamphetamine seizure", *Fox News*, 7 July 2020.

Expansion in methamphetamine trafficking continued in South-East Asia in 2019

The quantities of methamphetamine seized in East and South-East Asia increased twelvefold over the period 2009–2019, to 141 tons.[200] In each year during that period, the largest quantities of methamphetamine seized in the subregion were reported by China, except in 2018 and 2019, when the largest quantities were seized by Thailand, which accounted for 38 per cent of the total seized in the subregion in 2019, followed by China (18 per cent), Myanmar (14 per cent) and Indonesia (13 per cent).

While the typical purity of methamphetamine tablets encountered in East and South-East Asia has remained relatively stable in recent years (mostly within the range of 15–25 per cent)[201] and has even been increasing in a few countries over the past decade,[202] retail prices of methamphetamine tablets have plummeted in several countries in East and South-East Asia.[203] When taken together with the increases in the quantities seized, this

FIG. 32 **Quantity of methamphetamine seized in East and South-East Asia, by country, 2009–2019**



Source: UNODC, responses to the annual report questionnaire.

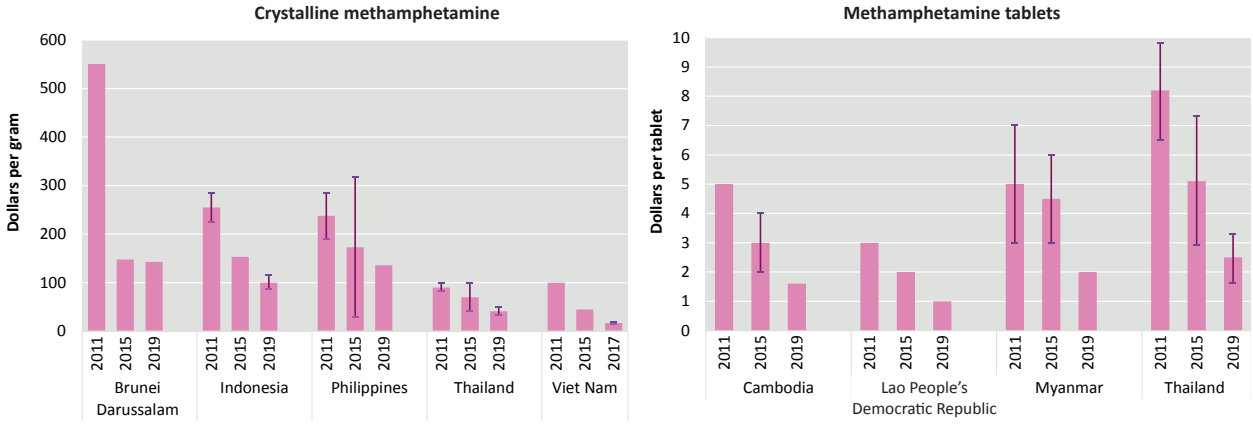
200 UNODC, responses to the annual report questionnaire.

201 UNODC, *Synthetic Drugs in East and South-East Asia: Trends and Patterns of Amphetamine-type Stimulants and New Psychoactive Substances* – A Report from the Global SMART Programme (March 2019).

202 UNODC, *Global Synthetic Drugs Assessment 2020* (United Nations publication, 2020).

203 Ibid.

FIG. 33 Changes in typical prices of methamphetamine at retail level, selected countries in East and South-East Asia, 2011–2019



Sources: UNODC, responses to the annual report questionnaire; Drug Abuse Information Network for Asia and the Pacific; and "Regional overview: Asia and Oceania", in UNODC, *Global Synthetic Drugs Assessment 2020* (United Nations publication, 2020).

Note: The high-low bars represent the upper and lower limits of the price range for those countries that reported such ranges in addition to the typical price; data in the figure are not adjusted for purity. For the purpose of this figure, a mid-point of upper and lower limit was used when data were reported in a range format.

suggests that the supply of methamphetamine has increased and may have outstripped demand in the subregion.

Nonetheless, the average purity of crystalline methamphetamine in East and South-East Asia remains high (typically between 65 and 95 per cent in 2019) and has even been increasing in some countries. Thailand, for example, reported a typical retail purity of crystalline methamphetamine of about 95 per cent in 2019, up from 80 per cent in 2014. Moreover, the average retail purity of crystalline methamphetamine in Viet Nam increased from 68 per cent in 2015 to 75 per cent in 2019 and in Indonesia from 62 per cent in 2016 to 77 per cent in 2019.[204]

The main exception to these trends was observed in China, where the amount of methamphetamine seized declined from 37 tons in 2015 to 25 tons in 2019; the wholesale price of the substance increased from $36,200 per kilogram in 2016 to $53,400 in 2019, while the retail price of methamphetamine increased from $61 per gram in 2015 to more than $100 per gram in 2019. In parallel, the street purity of methamphetamine declined from 95 per cent in 2015 to 72 per cent in 2019.[205] All of this suggests that the availability of methamphetamine on the Chinese market has declined in recent years.

There are also indications of a possible decline in the availability of methamphetamine in the Philippines. The retail purity of methamphetamine hydrochloride in that country was reported to have fallen, from 74 per cent in 2014 to 68 per cent in 2019,[206] while methamphetamine prices increased from an already high level in comparison with other Asian countries, from about $140 per gram in 2014 (range: $56–$223) to about $177 per gram in 2019 (range: $25–$329), and the quantity of methamphetamine seized fell from a peak of 2.2 tons in 2016 to 0.8 tons in 2018, before increasing again in 2019 (2.1 tons). The authorities reported that this reflected an actual increase in methamphetamine trafficking activities compared with the previous year as the country was increasingly targeted by both Chinese and Philippine-Chinese drug syndicates and African (mostly Nigerian) drug trafficking groups.[207]

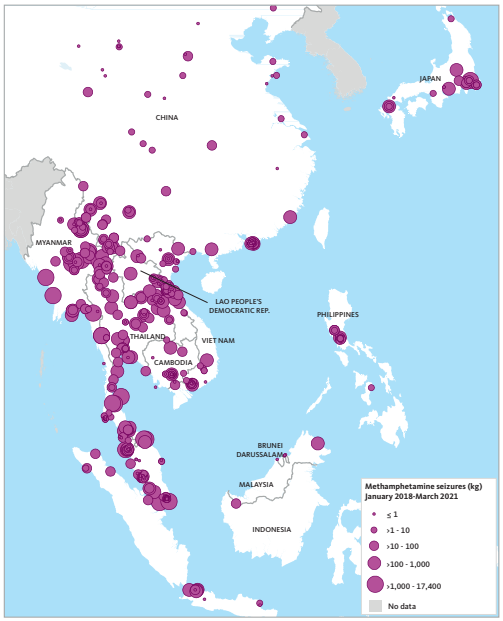
204 UNODC, responses to the annual report questionnaire.

205 Ibid.

206 UNODC, Drug Abuse Information Network for Asia and the Pacific.

207 UNODC, responses to the annual report questionnaire.

MAP 11 Significant individual methamphetamine seizures, East and South-East Asia, January 2018–March 2021

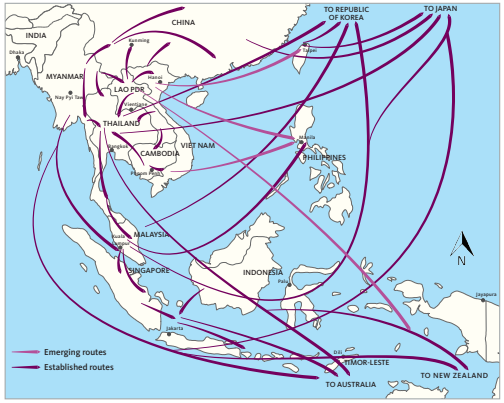


Source: UNODC, Drugs Monitoring Platform.

The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by the United Nations.

Most of the methamphetamine available in East and South-East Asia is sourced from within the subregion. The most frequently identified location of origin, departure and transit of methamphetamine shipments by countries and territories in East and South-East Asia in the period 2015–2019 was Myanmar, followed by (in descending order of the number of mentions) China, Thailand, Malaysia, Taiwan Province of China, the United States, the Lao People's Democratic Republic, Bangladesh, India and Cambodia. Other locations of origin, departure and transit from outside the region included Mexico and Nigeria. The role of China as a source country for methamphetamine, however, declined markedly between 2016 and 2019. The main destination for methamphetamine, as reported by countries in East and South-East Asia, was Malaysia,

MAP 12 Crystalline methamphetamine trafficking flows, East and South-East Asia, 2019



Source: UNODC, Global Synthetic Drugs Assessment 2020 (United Nations publication, 2020).

The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by the United Nations.

followed by Indonesia, Japan, the Philippines, Singapore, Australia, China and Thailand.[208]

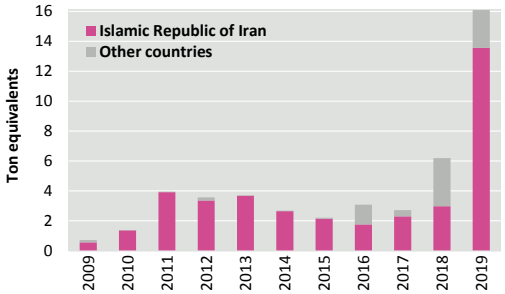
Record amounts of methamphetamine trafficked in the Near and Middle East and South-West Asia

The largest increase in the quantities of methamphetamine seized among all of the subregions in which the quantities seized amounted to more than 10 tons was reported by the Near and Middle East/South-West Asia. When taken together, the amounts seized in those subregions increased by almost 160 per cent compared with a year earlier, to 16 tons of methamphetamine in 2019, a more than twentyfold increase since 2009.

The bulk of the amounts seized (13.6 tons) continued in 2019 to be reported by the Islamic Republic of Iran (84 per cent of all quantities of methamphetamine seized in the Near and Middle East/South-West Asia in 2019). The largest increase in recent years, however, was reported by Afghanistan, where the amounts seized rose from 9

208 Ibid.

FIG. 34 **Quantities of methamphetamine seized, Near and Middle East/South-West Asia, 2009–2019**



Source: UNODC, responses to the annual report questionnaire.

kg in 2014 to 182 kg in 2018[209] and 1,251 kg in 2019,[210] exceeding the amounts of methamphetamine reported seized by Pakistan (870 kg in 2019).

There has been a shift in methamphetamine seizures reported from the Islamic Republic of Iran towards its border regions with Afghanistan and Pakistan, in line with reports that ever larger proportions of the methamphetamine in the subregion now originate in Afghanistan. The Islamic Republic of Iran reported that close to 90 per cent of the methamphetamine seized on its territory in 2019 had originated in Afghanistan and had been trafficked either directly from Afghanistan (50 per cent) or via Pakistan (50 per cent), almost all by land. This differs from the trafficking patterns seen a decade earlier, when Iranian authorities estimated that 75 per cent of the imported methamphetamine arrived by air, mostly from countries in South-East Asia.[211]

Countries reporting seizing methamphetamine that had originated in or departed from South-West Asia over the period 2015–2019 included countries in the Caucasus (Armenia and Georgia),[212] the Near and Middle East (Iraq[213, 214] and Saudi Arabia),[215] Western and Central Europe (France and United Kingdom),[216] Africa (Mozambique[217] and, in 2020, South Africa),[218] as well as countries in South-Eastern Europe (Turkey),[219] Central Asia (Tajikistan and Kyrgyzstan),[220] South Asia (Sri Lanka),[221] South-East Asia (Indonesia)[222] and Oceania (Australia).[223] In addition to those countries, destination countries identified for shipments of methamphetamine originating in South-West Asia that were seized in the subregion in 2020 included countries in the Near and Middle East (Bahrain and Qatar), South Asia (India), East Asia (Japan) and Oceania (New Zealand),[224] clearly underlining the international dimension and amounts of methamphetamine manufactured in and exported from South-West Asia.

High level of methamphetamine trafficking into and across Oceania

The quantities of methamphetamine seized in Oceania showed a marked increase over the period 2009–2014 but remained quite stable, at 5–6 tons, over the period 2015–2019. Australia accounted for 85 per cent of all the methamphetamine seized in the region over the period 2015–2019 and New Zealand for 15 per cent.

While the overall quantity of methamphetamine seized in New Zealand has increased, it has declined in Australia in recent years, although this decline seems to primarily reflect domestic seizures. Seizures of methamphetamine made at the Australian border, by contrast, showed an upward trend between the fiscal year 2015/16 and the fiscal year 2018/19, suggesting that an increasing amount of methamphetamine is coming from abroad and that the domestic manufacture of methamphetamine is declining.[225]

The median purity of the methamphetamine seized and analysed in Australia increased from about 10 per cent in the fiscal year 2009/10 to 60–80 per cent in 2013/14, in parallel to an increase in the quantity of the drug seized,

209 UNODC, responses to the annual report questionnaire.
210 INCB, *Report of the International Narcotics Control Board for 2020* (E/INCB/2020/1).
211 UNODC, responses to the annual report questionnaire.
212 Ibid.
213 Damon and Tawfeeq, "Iraq battles two killer epidemics at once".
214 UNODC, Drugs Monitoring Platform.
215 UNODC, response to the annual report questionnaire.
216 Ibid.
217 Ibid.
218 Eligh, *A Synthetic Age: The Evolution of Methamphetamine Markets in Eastern and Southern Africa*.
219 UNODC, Drugs Monitoring Platform.
220 Ibid.
221 EMCDDA, *Emerging Evidence of Afghanistan's role as a Producer and Supplier of Ephedrine and Methamphetamine*.
222 Ibid.
223 Ibid.
224 Ibid.
225 Australian Criminal Intelligence Commission, *Illicit Drug Data Report 2018–19*.

Security challenges and limited precursor control are facilitating methamphetamine manufacture and trafficking in South-East Asia

South-East Asia is playing an increasingly prominent role in the global manufacture of and trafficking in synthetic drugs. The quantities of methamphetamine seized in South-East Asia and neighbouring East Asia have increased significantly in recent years, reaching a record 141 tons in 2019, which represents a 119 per cent increase compared with 2015 and suggests an increase in the manufacture of and trafficking in the drug in East and South-East Asia. Although all countries in the subregion are affected by the surge in the supply of methamphetamine, the problem appears to have been much more pronounced in the five countries located in the Lower Mekong Basin (Cambodia, Lao People's Democratic Republic, Myanmar, Thailand and Viet Nam). These countries account for about 10 per cent of the total population of East and South-East Asia;[a] however, the quantities of methamphetamine seized on their territory (85 tons) accounted for 61 per cent of the subregional total in 2019.[b]

The large share of the quantities seized in the Lower Mekong Basin is primarily the result of a consolidation of methamphetamine manufacture into autonomous parts of Shan State and the special regions of Myanmar,[c] otherwise known as the Golden Triangle,[d] where there are security and accessibility issues.[e] In turn, this situation may have created an environment conducive to the involvement of armed groups and militia in the manufacture of and trafficking in different drugs; initially opiates, followed by methamphetamine tablets and crystalline methamphetamine, which has brought profound changes to illicit drug markets in Asia and the Pacific.[c, f]

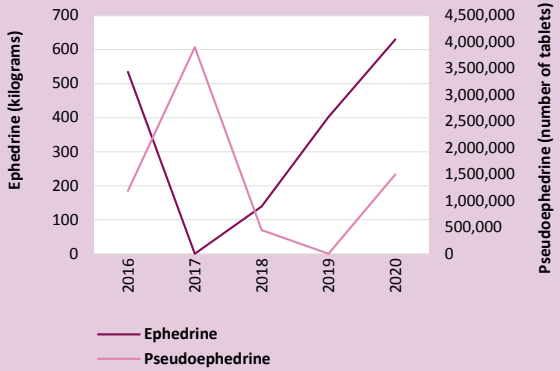
Ephedrine and pseudoephedrine remain the primary precursor chemicals used in the manufacture of methamphetamine in parts of Myanmar, as shown by recent information on methamphetamine profiling reported by countries in the region. For instance, China has reported that the forensic analysis of crystalline methamphetamine samples trafficked from the Golden Triangle in 2019 showed that 80 per cent had been manufactured using the Emde method, which requires ephedrine or pseudoephedrine as starting materials.[g] Data from other countries that seize substantial quantities of crystalline methamphetamine manufactured in the Golden Triangle area of Myanmar, such as Indonesia, the Philippines and Thailand, also confirm that the two substances are the main precursor chemicals used in the manufacture of methamphetamine.[h, i, j, k]

The surge in methamphetamine manufacture has required a parallel increase in the supply of the main methamphetamine precursors. However, the quantities of methamphetamine and its precursors seized are not consistent, suggesting that the capacity to identify and intercept methamphetamine precursors is lower than that to identify and intercept the drug itself. The quantities of ephedrine and pseudoephedrine intercepted in Myanmar and neighbouring countries are miniscule in comparison with the amounts needed to support the manufacture of the quantities of methamphetamine estimated to have originated in Myanmar that are seized in the region, let alone the quantities that are likely being manufactured but not seized. Between 2015 and 2019, an estimated 65 tons of ephedrine or pseudoephedrine would have been required annually to manufacture the amount of purity-adjusted methamphetamine seized annually during the period in East and South-East Asia. This compares to an annual average amount of 456 kg of ephedrine and pseudoephedrine seized in Myanmar during that period. While it cannot be assumed that Myanmar is the source of all methamphetamine seized in the area, it is likely to account for a large share; the small amount of ephedrine and pseudoephedrine seized in the country suggests a significantly low interception of these precursors in Myanmar and possibly an increasing use of non-controlled chemicals in the manufacture of methamphetamine. This discrepancy suggests that the criminal groups behind methamphetamine manufacture have been able to successfully circumvent existing regulatory mechanisms to source ephedrine and pseudoephedrine, and/or that they are illicitly manufacturing the two substances using non-controlled chemicals and pre-precursors.

Given the potentially large scale of methamphetamine manufacture in Myanmar, it is likely that substantial quantities of controlled and non-controlled chemicals have been diverted and trafficked into drug-manufacturing areas and shipped from or through neighbouring countries. For example, the amounts of unidentified chemicals seized in the Lao People's Democratic Republic have increased significantly in recent years, from 4.3 tons in 2015 to 133 tons in 2020, suggesting a dramatic increase in the interception of such chemicals, although these quantities may still be insignificant given the quantities potentially needed for the scale of methamphetamine manufacture likely taking place in the area.[k, l]

A combination of factors is most likely providing organized crime groups with ideal conditions for the illicit manufacture of and trafficking in methamphetamine and its precursors in Myanmar. It has been argued that governance challenges related to autonomous and special regions of Myanmar and insecurity in parts of the country have been conducive to an expansion of methamphetamine manufacture,[f] in addition to limited precursor control in some parts of the sub-region in general.

Quantities of ephedrine and pseudoephedrine seized, Myanmar, 2016–2020



Source: Central Committee for Drug Abuse Control of Myanmar.

Note: The amount of pseudoephedrine found in tablets varies.

a United Nations, Department of Economic and Social Affairs, Population Division, World Population Prospects: 2019 Revision.

b UNODC, responses to the annual report questionnaire.

c Janes Information Group, "Janes Terrorism Special Report: United Wa State Army – finances and economics" (January 2021).

d The Golden Triangle is an area long associated with heroin manufacture. It is located where the borders of the Lao People's Democratic Republic, Myanmar and Thailand converge along the Mekong River. Nowadays, the area is more associated with the illicit manufacture of synthetic drugs, such as methamphetamine and ketamine.

e International Crisis Group, "Fire and ice: conflict and drugs in Myanmar's Shan State", Asia Report, No. 299 (January 2019).

f Myanmar Institute for Peace and Security, "Annual Peace and Security Review 2020", July 2020.

g National Narcotics Control Commission of China, "Drug analysis and profiling in China", presentation to the global SMART programme regional workshop for East and South-East Asia held in November 2020.

h National Narcotics Board of Indonesia, "Latest situation on synthetic drugs and responses to the threats in Indonesia", presentation to the global SMART programme regional workshop for East and South-East Asia held in November 2020.

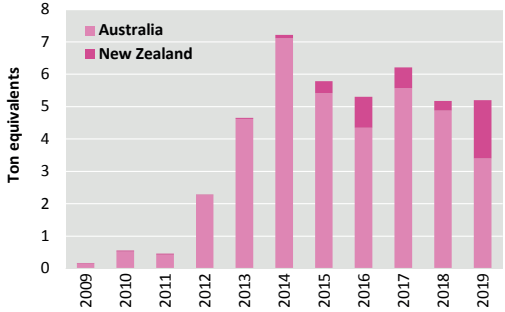
i Dangerous Drugs Board of the Philippines and Philippines Drug Enforcement Agency, "Country report", presented at the meeting of drug forensic specialists held in Beijing in December 2019.

j Official communication from the Office of the Narcotics Control Board of Thailand, February 2020.k Lao People's Democratic Republic, National Commission for Drug Control and Supervision, "Report of seizure of illicit drugs from January to December 2019" (February 2020).

k Lao People's Democratic Republic, National Commission for Drug Control and Supervision, "Report of seizure of illicit drugs from January to December 2019" (February 2020).

l The Lao People's Democratic Republic did not specify the types of chemicals seized in the country.

FIG. 35 Quantities of methamphetamine seized, Oceania, 2009–2019



Source: UNODC, responses to the annual report questionnaire.

and remained stable in the subsequent years, ranging from 67 per cent in Tasmania to 83 per cent in Victoria in the fiscal year 2018/19.[226]

Wastewater analysis covering 56 per cent of the country's total population suggests an increase in methamphetamine consumption, from 8.4 tons in the fiscal year 2016/17 to 9.8 tons in 2017/18 and 11.5 tons in 2018/19, with a peak in early 2020 before a decline in subsequent months, leading to a slight decline overall in 2019/20, to 11.1 tons.[227] This suggests that interceptions may have declined as methamphetamine traffickers have found new ways to smuggle the drug into the country and/or to manufacture it in clandestine laboratories in Australia without being detected.

Nonetheless, available data also suggest that the methamphetamine interception rate may still be significant in Australia. The quantities of ATS seized, excluding MDMA, amounted to 5.1 tons in Australia in the fiscal year 2018/19, of which 99 per cent was methamphetamine. Given that purity was on average 78 per cent in 2018/19,[228] purity-adjusted seizures thus reached some 4 tons in 2018/19. Such amounts, together with a consumption of 11.5 tons based on wastewater analysis in 2018/19,[229] suggest that some

226 Ibid.

227 Australian Criminal Intelligence Commission, University of Queensland and University of South Australia, *National Wastewater Drug Monitoring Program: Report 12.*

228 Australian Criminal Intelligence Commission, *Illicit Drug Data Report 2018–19.*

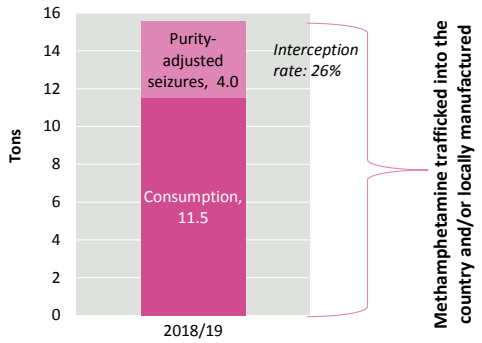
229 Ibid.

15.5 tons of methamphetamine either entered the country and/or were manufactured domestically in 2018/19, of which about a quarter was seized.

Although still also manufactured locally, methamphetamine is imported into Oceania to an ever larger extent. Most of the methamphetamine that reaches Oceania originates in North America and Asia. In the period 2015–2019, the most frequently mentioned countries and territories of origin, departure and transit by countries in Oceania (Australia and New Zealand) were the United States, followed, in descending order of the number of mentions, by China, Canada, Thailand, Hong Kong, China, Mexico and Malaysia.[230] In the fiscal year 2018/19, methamphetamine was mainly smuggled into Australia from Thailand, followed by Mexico, the United States, Singapore, Canada, Malaysia, the Lao People's Democratic Republic, Germany, India and China (including Hong Kong, China).[231] With regard to the methamphetamine seized in New Zealand, Thailand was the main transit country in 2019 (42 per cent), followed by the United States (16 per cent) and Mexico (13 per cent).[232]

At the same time, the chemical analysis of seizures made at the Australian border revealed the increasing importance of methamphetamine manufactured from P-2-P precursors in recent years, from 2 per cent of the total weight of the methamphetamine samples analysed in 2010 to 29 per cent in 2015 and 66 per cent in 2018, reflecting an increase in the quantities of methamphetamine trafficked from North America, namely, from Mexico via the United States into Australia. This trend did not continue in 2019, however, when the proportion declined to 49 per cent. The proportion of methamphetamine seized at the Australian border that was manufactured from ephedrine and pseudoephedrine increased from 34 per cent in 2018 to 51 per cent over the first six months of 2019, indicating a partial shift back to methamphetamine imports from East and South-East Asia, notably of shipments via Thailand to Australia.[233] This is even more surprising, as in the meantime some P-2-P-based manufacture of methamphetamine has also been reported from South-East Asia (notably from Viet Nam).[234]

FIG. 36 Estimated size of the methamphetamine market in Australia, fiscal year 2018/19 (tons)



Sources: Australian Criminal Intelligence Commission, University of Queensland and University of South Australia, *National Wastewater Drug Monitoring Program: Report 12* (February 2021); Australian Criminal Intelligence Commission, *Illicit Drug Data Report 2018–19* (Canberra 2020); and responses to the annual report questionnaire.

Nonetheless, North America, typically a destination region, continues to play an important role as a source of methamphetamine for Australia and New Zealand, which can be only explained by the high price of methamphetamine in Oceania. At the retail level, methamphetamine amounted to, on average, $400 per gram (range: $139–$661) in Australia[235] and $263 in New Zealand (range: $132–$395)[236] in 2019, which compares to $70 (range: $23–$116) per gram in Canada (2018), about $66[237] per gram (range: $10–$400)[238] in the United States (2018) and just $6.6 (range: $4.6–$18.5) in Mexico (2019).[239]

230 UNODC, annual report questionnaire.
231 Australian Criminal Intelligence Commission, *Illicit Drug Data Report 2018–19.*
232 UNODC, responses to the annual report questionnaire.
233 Australian Criminal Intelligence Commission, *Illicit Drug Data Report 2018–19.*
234 INCB, *Precursors and Chemicals Frequently Used in the Illicit Manufacture of Narcotic Drugs and Psychotropic Substances* (E/INCB/2020/4).
235 UNODC, responses to the annual report questionnaire.
236 Ibid.
237 Based on a purity-adjusted price of $65 and a purity level of 94.1 per cent over the period January–December 2017 (United States, Department of Justice, Drug Enforcement Administration, *2019 National Drug Threat Assessment*).
238 UNODC, responses to the annual report questionnaire.
239 Ibid.

Record increase in quantities of methamphetamine seized in Europe in 2019

The quantity of methamphetamine intercepted in Europe, although still comparatively limited, grew fourfold from 2018 to 2019 and more than sevenfold between 2009 and 2019, to reach more than 5 tons in 2019.

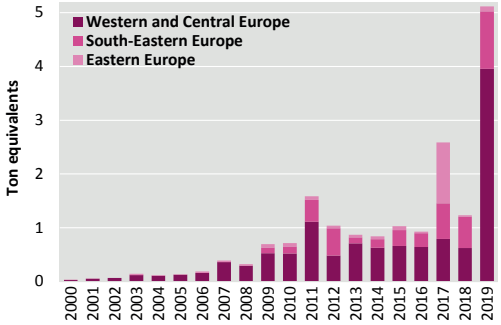
With about 2 tons seized annually on average in the period 2015–2019, Europe accounted for about 1 per cent of the global quantity of methamphetamine seized in that period, with Western and Central Europe accounting for nearly two thirds of the quantities seized in the region.

The increase in the quantity of methamphetamine seized in 2019 was most pronounced in Western and Central Europe, showing a sixfold increase compared with the previous year, although increasing quantities of methamphetamine were also seized in Eastern Europe (fourfold increase) and in South-Eastern Europe (over 80 per cent increase). Overall, 21 European countries reported increases and just 10 reported declines in the quantities of methamphetamine seized in 2019, with most of those declines being minimal in absolute numbers (i.e., less than 1 kg). The largest quantities of methamphetamine seized in 2019 were reported by Spain, followed by Turkey, the Netherlands, France, Poland and Germany, while the largest decline, in absolute numbers, was reported by Czechia.

In total, 21 countries were identified by European countries as being the origin of the methamphetamine found on their markets over the period 2015–2019, most of them (15) located in Europe. Countries from outside Europe included (in descending order of the number of mentions) Thailand, Viet Nam, China, Mexico, Nigeria, the Islamic Republic of Iran and Afghanistan (mentioned for the first time in 2019); however, methamphetamine trafficked from those countries plays only a minor role in the overall supply of the European market.

The main destinations for methamphetamine manufactured in Europe are located within that region. Other destination markets for methamphetamine manufactured in Western and Central Europe or in other countries and regions (West and Central Africa, Iran (Islamic Republic of) and Mexico)[240] that transited Western and Central Europe in the period 2015–2019 included countries in Asia, most notably Malaysia, followed by Japan, the United Arab Emirates, Israel and Indonesia, and in Oceania, namely, Australia and New Zealand.[241]

FIG. 37 **Quantities of methamphetamine seized, Europe, 2000–2019**



Source: UNODC, responses to the annual report questionnaire.

Amphetamine supply

Amphetamine laboratories dismantled remain concentrated in Europe

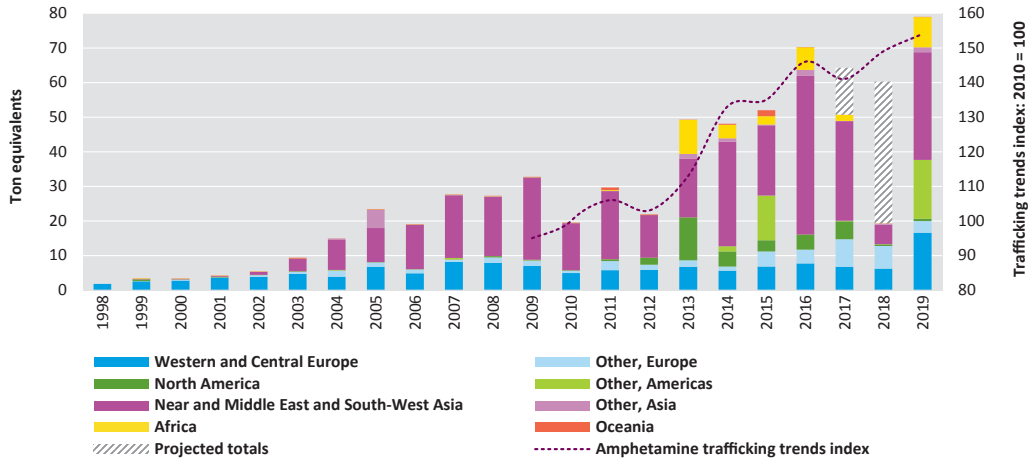
Of the total number of amphetamine laboratories reported dismantled worldwide in the period 2015–2019 (571), about 85 per cent (488) were dismantled in Europe, in particular in Western and Central Europe (380) and, to a lesser extent, in Eastern Europe (41). Overall, 18 European countries reported the dismantling of amphetamine laboratories in the period 2015–2019. Information on the number of dismantled laboratories and the most frequently identified countries of origin suggest that the Netherlands, followed by the Russian Federation, Belgium and Poland, are the main locations of amphetamine manufacture in Europe.

Outside Europe, the manufacture of amphetamine seems to be most widespread in the Near and Middle East, where the main form manufactured is "captagon" tablets, which typically contain amphetamine mixed with caffeine. However, no "captagon" laboratories have been officially reported as dismantled to UNODC in recent years as the manufacture in the countries concerned takes place mainly in territories not controlled by the authorities.

240 "Regional overview: Europe", in UNODC, *Global Synthetic Drugs Assessment 2020*.

241 UNODC, responses to the annual report questionnaire.

FIG. 38 Quantities of amphetamine seized and reported trends in amphetamine trafficking, 1998–2019



Source: UNODC, responses to the annual report questionnaire.

Notes: Projected totals are estimated assuming no change in the quantities of amphetamine seized by countries not reporting to UNODC in 2017 and/or 2018. The trafficking trends index is based on qualitative information on trends in amphetamine trafficking reported by Member States. The trend line is calculated on the basis of the number of countries reporting increases minus the number of countries reporting decreases (2 points for "large increase", 1 point for "some increase", 0 points for "stable", -1 point for "some decrease" and -2 points for "large decrease").

However, based on reports by Member States of countries of origin, most "captagon" manufacture appears to have taken place in Lebanon and the Syrian Arab Republic in the period 2015–2019.

At least 72 amphetamine laboratories were reported to have been dismantled in North America in the period 2015–2019. This constitutes only a small proportion of the overall number of dismantled ATS laboratories in the subregion, however, which is largely dominated by the manufacture of methamphetamine. In addition, a few amphetamine laboratories were also reported to have been dismantled in the rest of the Americas (6), notably in Central America (Guatemala) and South America (Argentina), in the period 2015–2019.

A small number of amphetamine laboratories were also reported to have been dismantled in Oceania in the period 2015–2019, although in that region the manufacture of methamphetamine also dominates the manufacture of amphetamines. No amphetamine laboratories were reported to have been dismantled in Africa during the same period.

Amphetamine trafficking is on the increase

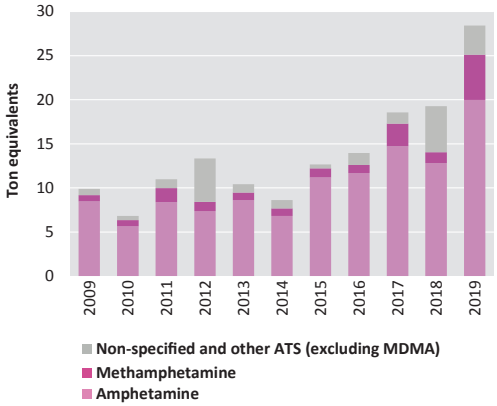
Despite annual fluctuations, the quantities of amphetamine seized have increased markedly at the global level over the past two decades, reaching a record high of 79 tons in 2019. Declines reported in 2017 and 2018 were largely statistical artefacts, reflecting the fact that no amphetamine seizure data were reported in those two years by a number of countries that had previously contributed significantly to the global total. Qualitative information on trafficking trends based on reports by Member States (on average 20 countries per year in the period 2010–2019) also suggests an increase in amphetamine trafficking over the past decade.

Amphetamine trafficking remains concentrated in the Near and Middle East and Europe

The Near and Middle East/South-West Asia and Europe (mostly Western and Central Europe) together account for three quarters of the global quantity of amphetamine seized in the period 2015–2019, accounting for 49 per cent and 26 per cent, respectively.

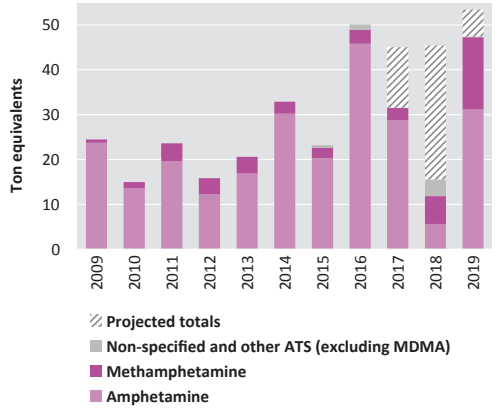
The reported quantities of amphetamines seized increased in Europe in 2019, in the case of both amphetamine and methamphetamine. This aligns with data on the consumption of amphetamines in Europe based on wastewater analysis, which showed marked increases in the consumption of both amphetamine and methamphetamine in 2019.[242]

FIG. 39 **Quantities of amphetamines seized, Europe, 2009–2019**



Source: UNODC, responses to the annual report questionnaire.

FIG. 40 **Quantities of amphetamine, methamphetamine and other amphetamine-type stimulants (excluding "ecstasy") seized, Near and Middle East/South-West Asia, 2009–2019**



Source: UNODC, responses to the annual report questionnaire.

Note: Projected totals are estimated assuming no change in the quantities of amphetamine seized by countries not reporting to UNODC in 2017, 2018 or 2019.

In the Near and Middle East/South-West Asia, the quantities of methamphetamine seized have fluctuated in recent years, which is mainly the result of non-reporting by countries known to be affected by major amphetamine trafficking activities. There is evidence to suggest that trafficking in amphetamine, especially of "captagon" tablets, has continued in the Near and Middle East in recent years.[243]

Most amphetamine trafficking continues to be mainly intraregional

In Europe, it seems that nearly all (96 per cent of all mentions in the period 2015–2019) amphetamine trafficked is sourced within the region,[244] in particular the Netherlands (accounting for 37 per cent of all mentions of source countries), followed by Poland (19 per cent), Belgium (12 per cent), Lithuania (11 per cent), the Russian Federation (5 per cent) and Bulgaria (2 per cent). Only small quantities of the amphetamine illicitly manufactured in Europe are destined for export to overseas markets, including markets in other regions.

In the Near and Middle East, most amphetamine is also trafficked from within the subregion. Tablets sold on illicit drug markets in this subregion often have the "captagon" logo, originally the brand name of a medicinal product that contained fenetylline. The content of such "captagon" tablets nowadays is usually a combination of amphetamine and caffeine and, in some cases, theophylline, quinine and paracetamol.[245, 246] Two countries, Lebanon and the Syrian Arab Republic, are the countries most often reported as source countries for "captagon" tablets. The final destinations of "captagon" are mostly also within the subregion, notably Saudi Arabia and various Gulf countries (including Qatar and the United Arab

242 UNODC calculations based on wastewater data provided by the Sewage Analysis CORe group Europe. See UNODC, *World Drug Report 2020*, booklet 3, *Drug Supply*.

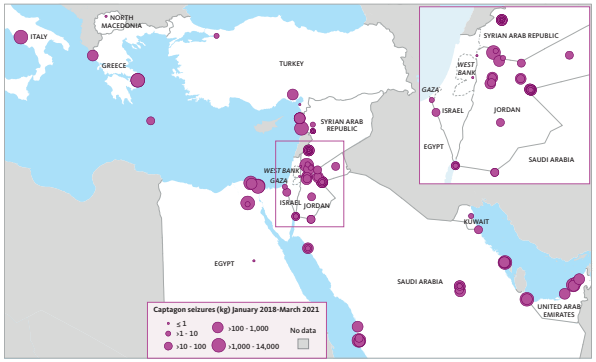
243 INCB, *Report of the International Narcotics Control Board for 2020* (E/INCB/2020/1).

244 UNODC, responses to the annual report questionnaire.

245 INCB, *Report of the International Narcotics Control Board for 2017* (E/INCB/2017/1).

246 EMCDDA, *Captagon: Understanding Today's Illicit Market*, EMCDDA Papers (Luxembourg, Publications Office of the European Union, 2018).

MAP 13 Significant individual seizures of "captagon" tablets, Near and Middle East, January 2018–March 2021



Source: UNODC, Drugs Monitoring Platform.

The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by the United Nations.

Emirates), using both direct and indirect routes. In parallel, a number of law enforcement operations have documented trafficking in "captagon" tablets between Lebanon and the Syrian Arab Republic to countries in North Africa, most notably Libya and the Sudan.[247]

Some of the "captagon" tablets exported to Saudi Arabia and other countries in the Near and Middle East are manufactured in Jordan, where the authorities dismantled a "captagon" laboratory in 2018. In that case, the amphetamine used in the "captagon" tablets was manufactured from APAAN, which in turn was manufactured from benzyl cyanide, a substance that is not controlled at the international level, reflecting the substantial chemical knowledge of the clandestine operators in the subregion. Similarly, a laboratory impurity analysis provided forensic evidence of the use of P-2-P methyl glycidate, another P-2-P precursor used in the illicit synthesis of amphetamine for "captagon" tablets seized in Lebanon in 2019,[248] underlining again the high sophistication of amphetamine manufacturing activities in the Near and Middle East.

The largest quantities of amphetamine tablets seized in the Near and Middle East/South-West Asia in the period 2015–2019 were reported by Saudi Arabia, followed by Jordan, the United Arab Emirates, Pakistan, the Syrian Arab Republic and Lebanon. In 2019, Saudi Arabia seized almost 146 million amphetamine tablets, Jordan seized 23 million, Kuwait and Lebanon seized 4 million each and Iraq seized more than 600,000.[249]

In a number of cases, Europe has also been used as a transit region for "captagon" originating in Lebanon or the Syrian Arab Republic, for onward trafficking to the Near and Middle East, notably Saudi Arabia, or to North Africa, notably Libya.[250] In one case in July 2020, Italian authorities at the Port of Salerno seized 84 million "captagon" tablets from three containers containing paper cylinders for industrial use and machinery that had also originated in the Syrian Arab Republic and were destined for a company in Switzerland.[251] Whether Switzerland was the final destination or whether the shipment was intended for further transit to other destinations in Europe or back to the Near and Middle East is not fully known, although the apparent link with the Camorra organized crime syndicate based in Naples, Italy, mentioned in the media, suggests that the shipment may have been intended for distribution in Europe.[252] In another recent case, 15 members of an international criminal group, including Austrian, Belgian, German, Hungarian, Lebanese, Syrian and Turkish nationals, were arrested in Austria in March 2021 for the trafficking of about 10 million "captagon" tablets. According to the media, allegedly manufactured in Lebanon,[253] the tablets had been smuggled by sea container to Belgium and then by land to Austria, with the intended destination being Saudi Arabia.[254, 255] The criminal group, which had drug depots in Germany as well as in various provinces in Austria, is estimated to have shipped 25 to 30 tons of "captagon" tablets from Austria to Saudi Arabia as air freight over the period 2016–2021. Some members of the group were also involved in cannabis resin trafficking and in the

247 UNODC, responses to the annual report questionnaire.

248 INCB, *Precursors and Chemicals Frequently Used in the Illicit Manufacture of Narcotic Drugs and Psychotropic Substances* (E/INCB/2020/4).

249 UNODC, responses to the annual report questionnaire.

250 UNODC, *World Drug Report 2020, booklet 3, Drug Supply*.

251 UNODC, Drugs Monitoring Platform.

252 Middle East Monitor, "Italy: Police seize 'largest ever' shipment of amphetamines", 2 July 2020.

253 *Kronen Zeitung*, "Pillen-Mafia: 17 Beschuldigte und zwei warten auf Auslieferung", 9 April 2021.

254 ORF Salzburg, "Massenweise Dschihadisten-Droge verkauft", 24 March 2021.

255 ORF Salzburg, "Internationaler Drogenring in Pizzeria ausgehoben", 8 June 2021.

shipment of at least 1.9 tons of cocaine from Brazil to Ghent, Belgium.[256, 257, 258]

There has also been trafficking in "captagon" tablets from the Near and Middle East via Egypt to Libya. In December 2020, for example, Egyptian authorities seized 8 million "captagon" tablets in a container in Port Said that was en route to Libya. The container had originated in Beirut and the "captagon" tablets appeared to have originated in Lebanon as well.[259]

"Ecstasy" supply

"Ecstasy" manufacture takes place in all regions but remains concentrated in Europe

A total of 18 countries reported the dismantling of more than 340 "ecstasy" laboratories in the period 2015–2019, while 36 countries were identified as countries of origin of seized quantities of the drug. Nonetheless, "ecstasy" continues to be manufactured primarily in Europe, most notably in Western and Central Europe. Europe accounted for 58 per cent of the "ecstasy" laboratories dismantled worldwide in the period 2015–2019, followed by Oceania (19 per cent), the Americas (12 per cent) and Asia (11 per cent). The ongoing concentration of "ecstasy" manufacture in Europe seems to be linked to the ability of the operators of such laboratories to employ a high degree of chemical expertise, innovation and flexibility in overcoming shortages in the supply of traditional precursors by identifying new, alternative substances that can be easily imported and used as pre-precursors.

Although eight European countries reported the dismantling of "ecstasy" laboratories in the period 2015–2019, including countries in Western and Central Europe and in Eastern Europe, the number of both "ecstasy" laboratories dismantled and reports of source countries of the drug continue to point to Belgium and the Netherlands as the countries where most "ecstasy" manufacture takes place in Europe.

256 NÖN.at, "Salzburg: Polizei hob internationalen Drogenring aus", 8 June 2021.

257 *Kurier*, "Salzburger Polizei zerschlug internationalen Drogenring", 8 June 2021.

258 *Kronen Zeitung*, "In Büromooser Pizzeria Polizei zerschlägt internationalen Drogenring", 8 June 2021.

259 UNODC, Drugs Monitoring Platform.

The dismantling of "ecstasy" laboratories was also reported in both North America (Canada and the United States) and Latin America (most notably Argentina and Brazil and, to a lesser extent, the Dominican Republic) in the period 2015–2019. This suggests that "ecstasy" is no longer exclusively imported into Latin America.

In Asia, the largest number of dismantled "ecstasy" laboratories was reported by Malaysia, followed by Indonesia. In Oceania, most of the "ecstasy" laboratories dismantled were in Australia. In Africa, the dismantling of "ecstasy" laboratories to date has been limited to South Africa.

Manufacture of "ecstasy" is on the increase and increasingly based on non-controlled pre-precursors

The long-term upward trend in the global supply of "ecstasy" in the 1980s and 1990s gave way to a (temporary) downward trend in the second half of the first decade of the new millennium, prompted by a shortage of traditional "ecstasy" precursor chemicals on the market (most notably 3,4-MDP-2-P), which was mainly due to improved precursor control at the global level, and in China in particular.[260, 261, 262] This changed after 2011, when operators of laboratories succeeded in identifying alternative chemical precursors. A number of indicators have shown a clear upward trend in the supply of the drug since 2011; and several countries reported that the MDMA content of "ecstasy" tablets was higher in 2019 (over 100 mg of MDMA per tablet) than it had been a decade prior, which also points to a likely increase in the availability of "ecstasy".[263]

The latest information shows that traffickers continue the search for innovative solutions for accessible precursors. Following the placing under international control in 2019 of two "ecstasy" pre-precursors, 3,4-MDP-2-P methyl glycidate and 3,4-MDP-2-P methyl glycid acid,[264] their presence on the market drastically reduced (as evidenced by the large decrease in the amount of them seized), while other potential alternatives have emerged. In 2019, there

260 UNODC, *World Drug Report 2014* (United Nations publications, 2014).

261 INCB, *Precursors and Chemicals Frequently Used in the Illicit Manufacture of Narcotic Drugs and Psychotropic Substances* (E/INCB/2013/4).

262 UNODC, "Global Smart Update 2012", vol. 7 (March 2012).

263 UNODC, responses to the annual report questionnaire.

264 Note by the Secretariat on changes in the scope of control substances under the United Nations Convention against Illicit traffic in Narcotic Drugs and Psychotropic Substance of 1988 (E/CN.7/2019/9).

was an increase in the number of reports and in the geographical spread of the use of helional, an alternative pre-precursor for the manufacture of MDA and MDMA. Even though helional has been encountered since 2011 in the manufacture of "ecstasy" in a number of countries, including Australia, Canada, Germany, the Netherlands and the United States, its use has now also spread to other countries. For example, in 2019, Brazil reported seizures of almost 220 kg of helional in two clandestine laboratories involved in the synthesis of MDA.[265]

Seizures of methylamine, which is used in the manufacture of "ecstasy", methamphetamine and synthetic cathinones, were reported in 2019 by the Netherlands (more than 4.3 tons), Mexico (more than 2,600 litres) and Viet Nam (70 litres), although the seizures in the last two countries seem to have been related to the manufacture of methamphetamine rather than "ecstasy".[266] In recent years, countries in North America also reported seizures of formaldehyde and ammonium chloride, substances that were seemingly intended to be used in the clandestine manufacture of methylamine in order to manufacture methamphetamine.[267, 268]

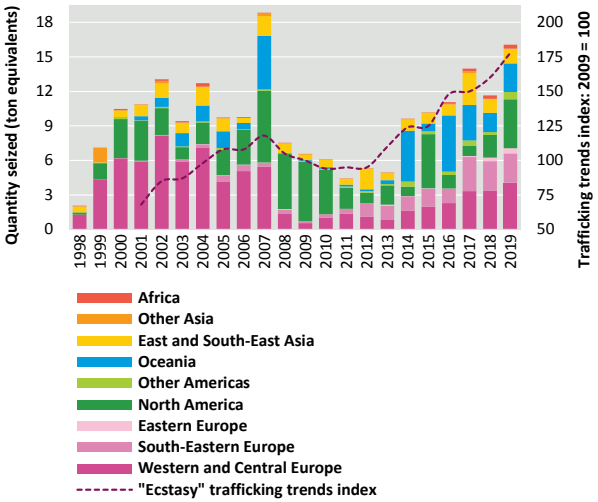
Nonetheless, it seems unlikely that the substances mentioned above, at least in the short term, will be able to compensate for the reduction in the supply of the well-established "designer precursors" 3,4-MDP-2-P methyl glycidate and 3,4-MDP-2-P methyl glycid acid resulting from their international control in 2019, suggesting that the global manufacture of "ecstasy" may have started to decline after its peak in 2019.

Increase in trafficking in "ecstasy" over the period 2011–2019

A number of indicators, including the number of "ecstasy" laboratories dismantled, the number of "ecstasy" seizure cases, the quantities of "ecstasy" seized and reported trends in trafficking in "ecstasy" on the basis of qualitative information, showed a clear upward trend in the supply of the drug between 2011 and 2019,[269] although this upward trend appears to have reversed in 2020 as a consequence of the restrictions related to the COVID-19 pandemic.[270, 271]

The quantity of "ecstasy" seized at the global level almost quadrupled after the low in 2011 to reach 16 tons in 2019, the second-highest level ever reported. There has been a marked increase in the quantity of "ecstasy" seized in almost all regions since 2011. In Europe, "ecstasy" seizures quadrupled, to reach 7 tons in 2019, in parallel with signs of an ongoing expansion of the "ecstasy" market, including increasing use of "ecstasy" pre-precursors in the manufacture of the drug in the region, a decline in "ecstasy" prices and a very sharp increase in the MDMA content of "ecstasy" tablets since the second half of the 2000s. The average MDMA content of tablets more than

FIG. 41 **Quantities of "ecstasy" seized, by region and reported trends in "ecstasy" trafficking, 1998–2019**



Source: UNODC, responses to the annual report questionnaire.

Note: The trafficking trends index is based on qualitative information on trends in "ecstasy" trafficking reported by Member States. The trend line is calculated on the basis of the number of countries reporting increases minus the number of countries reporting decreases (2 points for "large increase", 1 point for "some increase", 0 points for "stable", -1 point for "some decrease" and -2 points for "large decrease").

265 INCB, *Precursors and Chemicals Frequently Used in the Illicit Manufacture of Narcotic Drugs and Psychotropic Substances* (E/INCB/2020/4).

266 Ibid.

267 INCB, *Precursors and Chemicals Frequently Used in the Illicit Manufacture of Narcotic Drugs and Psychotropic Substances* (E/INCB/2018/4).

268 INCB, *Precursors and Chemicals Frequently Used in the Illicit Manufacture of Narcotic Drugs and Psychotropic Substances* (E/INCB/2020/4).

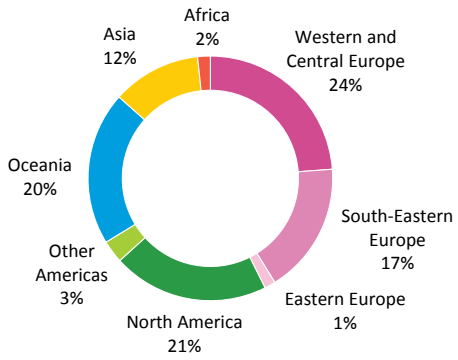
269 UNODC, responses to the annual report questionnaire.

270 UNODC, Drugs Monitoring Platform.

271 Global Drug Survey, GDS COVID-19 special edition: key findings report, "Global Drug Survey special edition on COVID-19".

doubled over the past decade in European Union countries to reach 132–181 mg (interquartile range) per tablet in 2018,[272] with very large amounts of MDMA (up to 409 mg) found in some batches of the drug in 2018, resulting in an increase in the potential harm linked to the use of "ecstasy".[273]

FIG. 42 Regional distribution of the quantities of "ecstasy" seized, 2015–2019



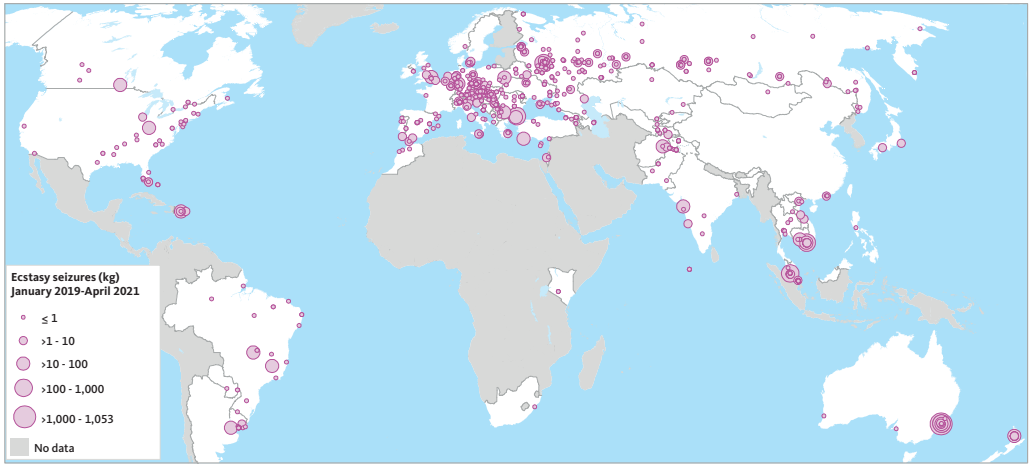
Source: UNODC, responses to the annual report questionnaire.

Overall, 101 countries reported seizures of "ecstasy" in the period 2015–2019, up from 71 countries in the period 1995–1999, suggesting a clear geographical expansion of trafficking in "ecstasy" over the past two decades.

Analysis of individual seizures show substantial "ecstasy" trafficking in Europe but also in South-East Asia, the Americas and Australia.[274]

In contrast to many other drugs, where one country often continues to dominate global seizures over a prolonged period, the situation seems to change quite frequently in the case of "ecstasy". For example, the largest quantities of "ecstasy" seized in 2014, 2016 and 2017 were reported by Australia, in 2018 by Turkey and in 2015 and 2019 by the United States. European countries still dominate "ecstasy" seizures, however. Among the 15 countries reporting seizing the largest quantities of "ecstasy" in 2019, 9 were located in Europe.

MAP 14 Significant individual seizures of "ecstasy", January 2019–April 2021



Source: UNODC, Drugs Monitoring Platform.

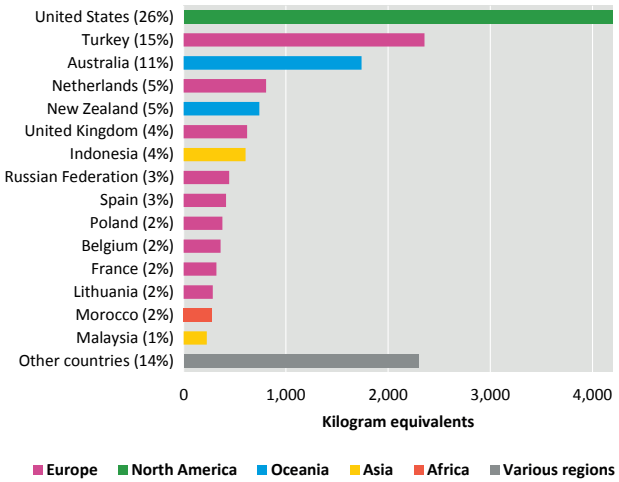
The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by the United Nations.

272 EMCDDA, *European Drug Report 2019: Trends and Developments* (Luxembourg, Publications Office of the European Union, 2019).

273 EMCDDA, *European Drug Report 2020: Trends and Developments* (Luxembourg, Publications Office of the European Union, 2020).

274 UNODC, Drugs Monitoring Platform.

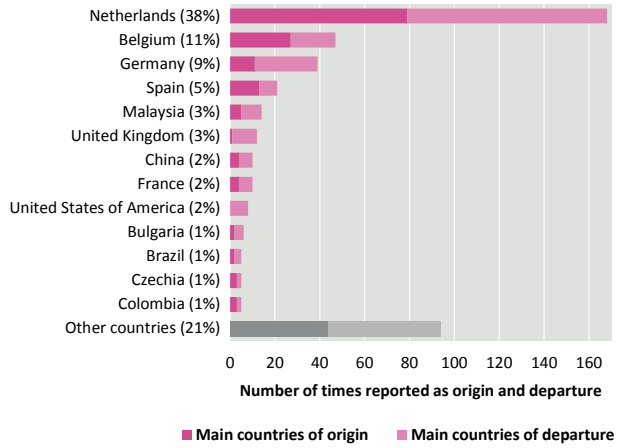
FIG. 43 Quantities of "ecstasy" seized, 2019



Source: UNODC, responses to the annual report questionnaire.

Note: The percentage refers to the share of each country of the global quantity of "ecstasy" seized.

FIG. 44 Main countries of origin and of departure of "ecstasy", 2015–2019



Source: UNODC, responses to the annual report questionnaire.

Note: The percentage refers to the share of each country of all the mentions of countries of origin and departure for "ecstasy" at the global level.

In contrast to other ATS, "ecstasy" is not characterized by mostly intraregional trafficking patterns: it is also, to a significant extent, trafficked interregionally, most notably from Europe to other regions. Overall, 81 per cent of all mentions at the global level of countries of origin or departure of "ecstasy" concerned countries in Europe.

"Ecstasy" manufactured in regions other than Europe seems to be mostly intended for use within the region where it is manufactured, although there are exceptions. Countries in Oceania report not only imports from Europe and local manufacture of "ecstasy" but also shipments from countries in Asia (notably China and Israel in the period 2015–2019). However, in the fiscal year 2018/19 in Australia, the 10 most common embarkation countries for "ecstasy" shipments were all located in Europe.[275] Intercepted shipments of "ecstasy" in Australia mainly involved shipments by mail (98 per cent); by weight, air cargo accounted for the greatest proportion of detections (48 per cent), followed by international mail (28 per cent).

Another exception seems to be "ecstasy" manufactured in North America, which is also reported as a source of supply in Asia, although less frequently (5 per cent of all mentions of countries of origin and departure over the 2015–2019 period) than imports from Europe (51 per cent) and local manufacture in Asia (39 per cent). In Asia, the most commonly reported countries of origin and departure of "ecstasy" were the Netherlands, followed by Malaysia. The most commonly mentioned source country in North America was the United States.

In contrast to most other drugs, there seems to be two-way trafficking in "ecstasy", from East and South-East Asia to North America, but also from North America to Asia, most notably to East and South-East Asia.[276] For a long time, "ecstasy" trafficking in North America primarily involved Asian organized crime groups located in Canada, working together with Asian organized crime groups located in the United States. MDMA was either imported from East and South-East Asia into Canada or manufactured in Canada from precursor chemicals obtained from East and South-East Asia, and then smuggled into the United States.[277] These trafficking patterns are ongoing:

275 Australian Criminal Intelligence Commission, *Illicit Drug Data Report 2018–19*.

276 UNODC, responses to the annual report questionnaire.

277 United States, Department of Justice, Drug Enforcement Administration, *2020 National Drug Threat Assessment*.

in 2019, Canadian authorities dismantled five "ecstasy" laboratories on their territory.[278]

Nonetheless, recent years have seen a diversification of the origin and departure countries of the "ecstasy" found on the North American market. Over the period 2015–2019, besides supply from within the subregion (Canada and the United States), supply from a number of countries in Western and Central Europe (Belgium, Germany and the Netherlands) was also reported. In 2019, United States authorities reported that close to 70 per cent of the "ecstasy" found on the domestic market had originated in the Netherlands and almost 30 per cent in Germany; about 98 per cent of the "ecstasy" had entered the United States by mail and 2 per cent by land (mainly trafficked from Canada).[279]

"Ecstasy" trafficking from Canada to the United States appears to have declined in recent years, while shipments of "ecstasy" from Europe (where laboratory operators have successfully experimented with the use of alternative pre-precursors) to North America have increased. It seems that these transactions are increasingly being carried out by Asian organized crime groups located in the United States, who often purchase the "ecstasy" from Asian organized crime groups based in Europe.[280] However, the increase in recent years of "fake" "ecstasy" tablets containing other substances than MDMA on the United States market[281] suggests that there could be an ongoing shortage of MDMA on that market. In fact, data from twelfth-grade high-school students in the United States suggest that the availability of "ecstasy" has declined in recent years, from 37.1 per cent reporting that it was "fairly easy" or "very easy" to obtain the substance in 2015 to 23.5 per cent in 2019, a far larger decrease than for any other drug.[282]

As for 2020, there are indications that the overall upward trend in "ecstasy" manufacture and trafficking at the global level may have ceased possibly because of mobility restrictions related to the COVID-19 pandemic,[283] which are likely to have limited the occasions on which the drug is used and led to a decline in its use.[284] Some operators in Belgium and the Netherlands, the two countries where most "ecstasy" manufacture takes place in Western Europe, appear to have started to also manufacture methamphetamine, a drug for which the demand seems to have increased in 2020.[285]

278 UNODC, responses to the annual report questionnaire.

279 Ibid.

280 United States, Department of Justice, Drug Enforcement Administration, *2020 National Drug Threat Assessment*.

281 Ibid.

282 Richard A. Miech and others, *Monitoring the Future National Survey Results on Drug Use, 1975–2019*, vol. I, *Secondary School Students* (Ann Arbor, Michigan, University of Michigan, Institute for Social Research, 2020).

283 For a more in-depth discussion on this topic, see booklet 5 of the present report.

284 Global Drug Survey, "Global Drug Survey special edition on COVID-19".

285 UNODC meeting with law enforcement experts from Belgium and the Netherlands on the impact of COVID-19 on ATS manufacture, 22 February 2021.

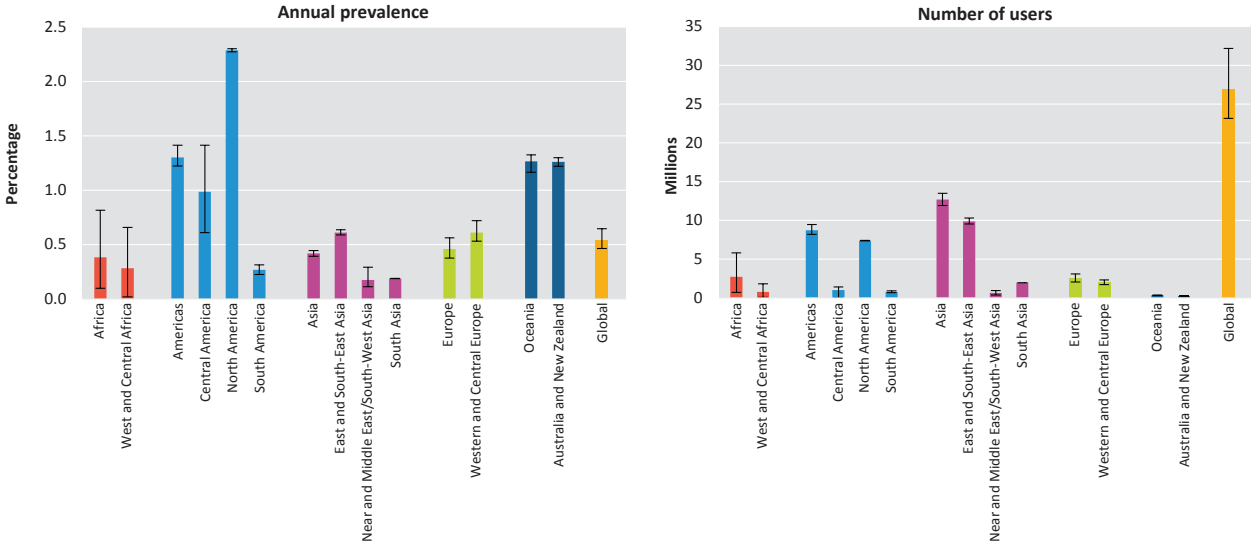
AMPHETAMINE-TYPE STIMULANTS

Use of amphetamines

It is estimated that in 2019, 0.5 per cent of the global population aged 15–64, or 27 million people, had used amphetamines in the past year.[286] The highest estimated past-year prevalence of use of amphetamines worldwide was that for North America (2.3 per cent), followed by Oceania (1.3 per cent), mainly reflecting the situation in the subregion of Australia and New Zealand. In the remaining subregions for which data were available, the estimated annual prevalence of use of amphetamines in 2019 was either below or similar to the global average.

The type and form of amphetamines used vary considerably among regions and subregions. In North America, the non-medical use of pharmaceutical stimulants and methamphetamine is the most prevalent; in East and South-East Asia and Oceania (Australia and New Zealand), use of crystalline methamphetamine predominates in many countries; and in Western and Central Europe and in the Near and Middle East, it is the use of amphetamine, which in the Middle East is mainly in the form of "captagon" tablets. In many countries in South and Central America, especially those that have reported recent survey data, the non-medical use of pharmaceutical stimulants is more common than the use of other amphetamines.

FIG. 45 Use of amphetamines, by region and subregion, 2019



Source: UNODC estimates, based on responses to the annual report questionnaire.

Note: Data are not shown for subregions where recent estimates (from the past 10 years) were not available from countries, and thus subregional estimates could not be computed. Amphetamines include amphetamine, methamphetamine and pharmaceutical stimulants used non-medically. For 2019, the estimated global number of amphetamines users and prevalence of amphetamines use are based on estimates from 84 countries containing 76 per cent of the world population. Of those, new data points were reported for 9 countries in 2019.

286 Including the use of amphetamine and methamphetamine and the non-medical use of pharmaceutical stimulants.

Use of crystalline methamphetamine in East and South-East Asia is on the increase

A lack of quality data based on household surveys in Asia makes it difficult to estimate with precision the prevalence of drug use in general in the region. However, on the basis of the limited data available, it is estimated that in Asia in 2019 about 0.4 per cent of the population aged 15–64 (12.7 million people) had used amphetamines in the past year, roughly three quarters of whom (9.9 million people) were in East and South-East Asia. Recent household surveys conducted in East and South-East Asia show that the number of past-year methamphetamine users was roughly 1.2 million (0.6 per cent of the population aged 10–59) in Indonesia in 2017 and 860,000 (1.1 per cent of the population aged 10–64) in the Philippines in 2016, while 652,000 people (1.3 per cent of the population aged 12–65) in Thailand used methamphetamine tablets and an additional 372,300 people (0.7 per cent of the population aged 12-65) used crystalline methamphetamine in 2019.

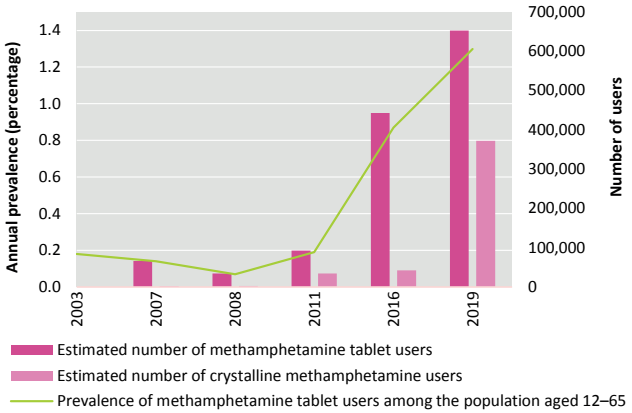
In Thailand, for which trend data on methamphetamine use were available for multiple years, there has been an increase in the use of methamphetamine, both in crystalline and tablet form, since 2008. However, the number of people in treatment for methamphetamine use disorders, who in 2019 accounted for nearly 87 per cent of all people in treatment for drug use disorders in Thailand, declined from its peak of 278,000 in 2013 to fewer than 200,000 in 2019.[287]

In other countries in East and South-East Asia, the number of drug treatment admissions and of people who use drugs registered or brought into formal contact with authorities for drug use are the only available indirect indicators of drug use, and both those indicators have limitations. Statistics relating to the number of people in treatment may reflect the extent of referral of people for drug treatment, especially involuntary referrals or treatment, as well as the capacity of the treatment system.[288] The number of people who use drugs registered in South-East Asia, for example, is affected by the conditions that determine the registration process and the number of people brought into formal contact with the authorities and reflects the level of law enforcement activities in a given year. Nevertheless, the change in these indicators suggests an increased use of methamphetamine. In Viet Nam, for example, the proportion of people using methamphetamine who were registered

287 The drug treatment system in Thailand includes both voluntary and compulsory drug treatment; the latter also includes treatment in the correctional system (Thailand, Office of the Narcotics Control Board, Ministry of Justice, *Thailand Narcotics Control: Annual Report 2019*, e-book).

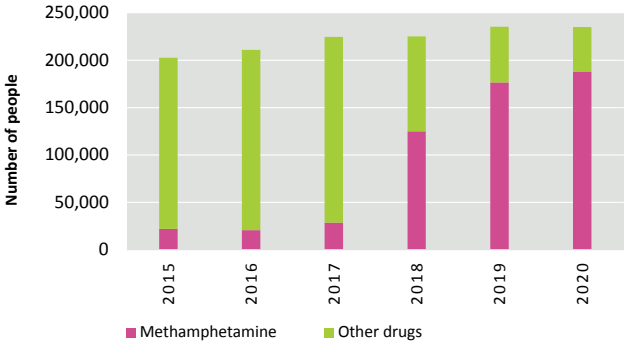
288 Jie Yang and Melita J. Giummarra, "Compulsory and voluntary drug treatment models in China: a need for improved evidence-based policy and practice to reduce the loaded burden of substance use disorders", *International Journal of Drug Policy* (2020).

FIG. 46 **Trends in methamphetamine use, Thailand, 2003–2019**



Sources: Based on data reported in Darika Saingam, "Substance abuse policy in Thailand: current challenges and future strategies", *Journal of Drug and Alcohol Research*, vol. 7 (2018); and UNODC, responses to the annual report questionnaire.

FIG. 47 **Number of registered people who use drugs, Viet Nam, 2015–2020**



Source: Viet Nam, Ministry of Labour Invalids and Social Affairs, annual reports.

Note: These numbers reflect the number of people who came into contact with the criminal justice system, were registered and were treated.

with law enforcement authorities has increased considerably since 2015 and in 2020 accounted for 80 per cent of all people who use drugs who are registered in the country.

In China, data on people who use drugs and are registered with the authorities suggest that after years of sharp increases, methamphetamine use is stabilizing. Users of synthetic drugs (mainly methamphetamine) accounted for 55 per cent of the nearly 2.2 million drug users officially registered with the authorities in 2019.[289] This proportion had been increasing since the early 2000s, when roughly 75 per cent of people registered for drug use were users of opioids.[290] The number of people using methamphetamine registered in China increased between 2008 and 2014 and has remained stable ever since.

An increase in the quantities of methamphetamine seized and a decrease in the retail price of the drug in East and South-East Asia suggest that the supply of methamphetamine, in particular of crystalline methamphetamine, has expanded, with one possible repercussion being an increase in the number of people using methamphetamine.[291] Several countries in the subregion, including Brunei Darussalam, Cambodia, Malaysia, Singapore and the Republic of Korea, have perceived an upward trend in the use of crystalline methamphetamine.[292]

Low levels of use of amphetamines in other parts of Asia and in Africa

The use of amphetamines in other subregions in Asia is lower than in East and South-East Asia. In South Asia, the Near and Middle East and South-West Asia, the past-year prevalence is less than 0.2 per cent of the adult population, but large gaps in reliable data remain, which prevents a clear picture of the patterns and trends in drug use in the region.

Nevertheless, there are accounts of an alarming increase in the use of amphetamines, including methamphetamine and "captagon" tablets, in Iraq, but there are no recent estimates of the extent of the use of those drugs in that country.[293] The emergence of methamphetamine use in Iraq was reported in 2012, when, on the basis of data from medical and psychiatric hospitals, outpatient clinics, health centres, surveys of medial clients and prisoners, and law enforcement reports, the primary drugs of concern in Iraq were found to be "captagon", crystalline methamphetamine and tramadol.[294]

There are also reports of the emergence and increasing use of methamphetamine in Afghanistan. As observed in other countries, in Afghanistan, methamphetamine is frequently used concomitantly with opiates as well as on its own.[295] A recent survey (2019) on drug use among young people in Afghanistan showed that 1.3 per cent of those enrolled in secondary schools reported use of methamphetamine in the past year.[296]

In the Islamic Republic of Iran, the past-year prevalence of use of amphetamines was estimated at 0.4 per cent of the adult population aged 15–64 in 2015, the most recent year for which estimates are available. The use of methamphetamine in the Islamic Republic of Iran was not common prior to 2005, but it has since become common among people who use drugs, in particular among people with opioid use disorders who are in long-term opioid agonist treatment.[297, 298]

In South Asia, less than 0.2 per cent of the population aged 10–75 in India, or roughly 1.9 million people, reported past-year use of ATS in 2018.[299] In Central Asia, where an increasing number of synthetic drugs, such as amphetamines, mephedrone and *alpha*-PVP, have also appeared in the market, the consumption of these stimulants is often combined with cannabis and opioids, resulting in

289 Office of China National Narcotics Control Commission, Report on Drug Control in China for different years.

290 See also booklet 3 of the present report, *Drug Market Trends: Cannabis, Opioids*.

291 UNODC, *Synthetic Drugs in East and South-East Asia: Trends and Patterns of Amphetamine-type Stimulants and New Psychoactive Substances – A Report from the Global SMART Programme* (March 2020).

292 Ibid.

293 Conference room paper UNODC/SUBCOM/55/CRP.5.

294 Nesif J. Al-Hemiary and others, "Drug and alcohol use in Iraq: findings of the Inaugural Iraqi Community Epidemiological Workgroup", *Substance Use and Misuse*, vol. 49, No. 13 (November 2014), pp. 1759–1763.

295 UNODC, *World Drug Report 2020*, booklet 4, *Cross-Cutting Issues: Evolving Trends and New Challenges* (United Nations publication, 2020).

296 UNODC, "Youth study on substance use and health in Afghanistan" (2020).

297 Atireza Bananej and others, "No evidence of subgroups found in amphetamine consumers in Iran", *Neuropsychiatrie*, vol. 32, No. 2 (March 2018), pp. 69–74.

298 Alireza Noroozi, Mohsen Malekinejad and Afarin Rahimi-Movaghar, "Factors influencing transition to shisheh (methamphetamine) among young people who use drugs in Tehran: a qualitative study", *Journal of Psychoactive Drugs*, vol. 50, No. 3 (January 2018), pp. 214–223.

299 Atul Ambekar and others, *Magnitude of Substance Use in India 2019* (New Delhi, Ministry of Social Justice and Empowerment, 2019).

polydrug use patterns.[300, 301] Furthermore, a recent survey (2019) on drug use among youth (aged 13–18) in Kazakhstan suggested that the past-year use of amphetamines among adolescents ranged between 0.3 per cent and 0.7 per cent.[302]

Data on the use of amphetamines in Africa are insufficient. In 2019, between 0.1 per cent and 0.8 per cent (best estimate: nearly 0.4 per cent, or 2.7 million people) of the population aged 15–64 were estimated to have used amphetamines in the past year, although the uncertainty range of this estimate is wide due to a lack of prevalence data in many countries. In West and Central Africa, data from Nigeria suggested that in 2018, 0.2 per cent of the population aged 15–64, or an estimated 240,000 people, had used amphetamines in the previous year; the non-medical use of pharmaceutical amphetamine was more common than the use of methamphetamine.[303]

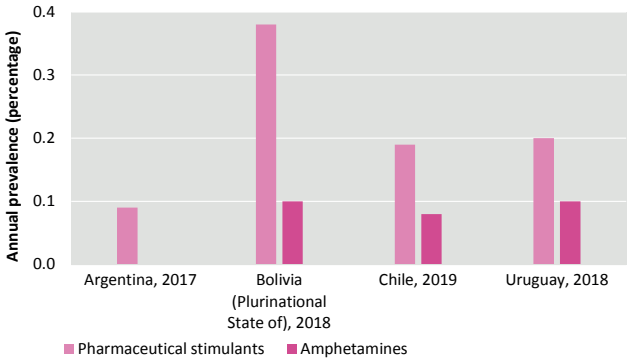
In South Africa, treatment admissions related to methamphetamine use disorders have remained low in general, except in the provinces of the Western Cape and the Eastern Cape. In the Western Cape, nearly 30 per cent of people in treatment in 2019 were being treated for methamphetamine as the primary drug of concern, a proportion that remained stable for the reporting periods of 2017 and 2018. However, in 2019 nearly 40 per cent of people under the age of 20 who were in drug treatment had methamphetamine as either the primary or secondary drug of concern, compared with 13 per cent reported in 2017.[304, 305]

Pharmaceutical stimulants are the main amphetamines misused in South and Central America

The use of amphetamines in countries in South America remains low, with about 0.3 per cent of the population aged 15–64 (nearly 800,000 people) having used the drug in the past year in 2019, whereas the past-year prevalence is estimated to be higher in Central America, at about 1 per cent of the adult population (300,000 people). In many countries in these two subregions, among those that reported recent survey data, the non-medical use of pharmaceutical stimulants is the most prevalent issue related to ATS use. "Slimming pills" such as sibutramine hydrochloride monohydrate (e.g., Aderan and Ipomex) and phentermine (e.g., Duromine and Suprenza), along with methylphenidate and amphetamine, are reported to be the most commonly misused pharmaceutical stimulants.[306, 307] The non-medical use of "slimming pills" is reported to be higher among women than men in the two subregions.[308]

Recent information on the extent of the use of amphetamines among adults is not available in any country in the Caribbean. However, data from a secondary school survey conducted in 2016 in 13 countries in the Caribbean showed that the average past-year prevalence of the

FIG. 48 **Use of amphetamines and non-medical use of pharmaceutical stimulants in Central and South America, selected countries with recent data**



Source: UNODC, responses to the annual report questionnaire.

300 Oleg Yussopov and others, *National Report on Drug Situation in the Republic of Kazakhstan 2018* (Central Asia Drug Action Programme, 2018).

301 Tomas Zabransky and Viktor Mravcik, eds, *The 2019 Regional Report on the Drug Situation in Central Asia* (Prague, 2019).

302 UNODC, "Youth survey on drug use and health in Kazakhstan" (2019).

303 UNODC and Nigeria, *Drug use in Nigeria 2018* (Vienna, 2019).

304 Siphokazi Dada and others, "Monitoring alcohol, tobacco and other drug use trends in South Africa: July 1996–December 2019 – Phase 47" (Cape Town, South African Community Epidemiology Network on Drug Use, 2021).

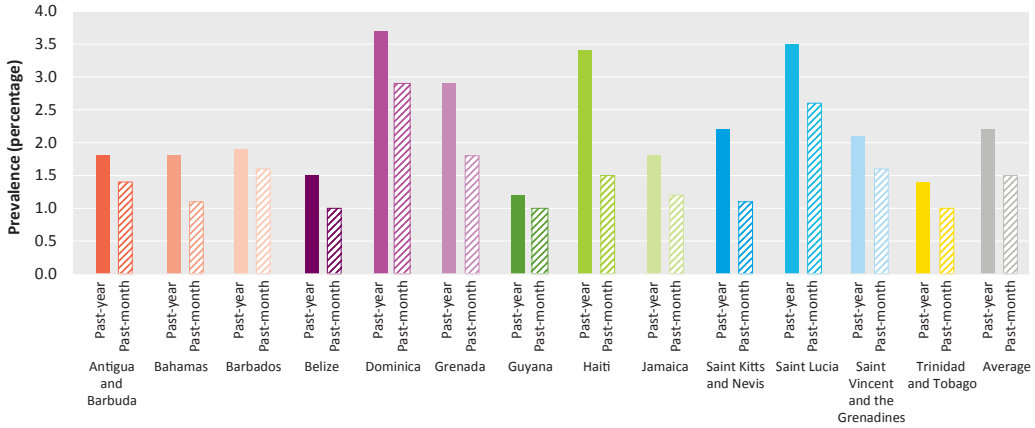
305 Siphokazi Dada and others, "Monitoring alcohol, tobacco and other drug use trends in South Africa: October 2018 – Phase 43" (Cape Town, South African Community Epidemiology Network on Drug Use, 2018).

306 Argentina, Secretaría de Políticas Integrales sobre Drogas de la Nación Argentina, *Estudio Nacional en Población de 12 a 65 años, sobre Consumo de Sustancias Psicoactivas: Argentina 2017 – Informe de Resultados No.1: Magnitud del Consumo de Sustancias a Nivel Nacional* (Buenos Aires, 2017).

307 El Salvador, Dirección Ejecutiva de la Comisión Nacional Antidrogas, *Estudio Nacional Sobre Consumo de Drogas en Población General de El Salvador, 2014* (San Salvador, 2014).

308 Secretaría de Políticas Integrales sobre Drogas de la Nación Argentina, *Estudio Nacional en Población de 12 a 65 años, sobre Consumo de Sustancias Psicoactivas*.

FIG. 49 Non-medical use of pharmaceutical stimulants among secondary school students, 13 countries in the Caribbean, 2016



Source: Organization of American States, Inter-American Drug Abuse Control Commission, A Report on Students' Drug Use in 13 Caribbean Countries: 2016, document OEA/Ser.L/XIV.6.46.

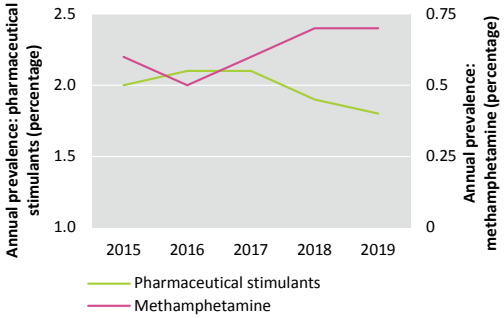
non-medical use of pharmaceutical stimulants among students aged 15–17 was 2.2 per cent, ranging from 1.2 per cent in Guyana to 3.7 per cent in Dominica.[309] On average, 1.5 per cent of students aged 15–17 reported past-month non-medical use of pharmaceutical stimulants.

Use of amphetamines in North America remains high, and methamphetamine use has increased in the United States

In 2019, the annual prevalence of use of amphetamines in North America was estimated at 2.3 per cent (7.4 million people). This mainly reflects the use of amphetamines in the United States, since the annual prevalence of use was estimated at about 0.4 per cent in Canada in 2017 and at about 0.2 per cent of the population aged 15–64 in Mexico in 2016, the latest years for which data are available for those countries.

In the United States, the non-medical use of pharmaceutical stimulants (mostly amphetamine manufactured for medical use and methylphenidate) is more prevalent than the use of methamphetamine, with about 1.8 per cent of the population (nearly 5 million people) aged 12 and older reporting the past-year non-medical use of pharmaceutical stimulants in 2019, and 0.7 per cent (nearly 2 million people) reporting the use of methamphetamine.[310]

FIG. 50 Non-medical use of pharmaceutical stimulants and use of methamphetamine among the population aged 12 and older, United States, 2015–2019

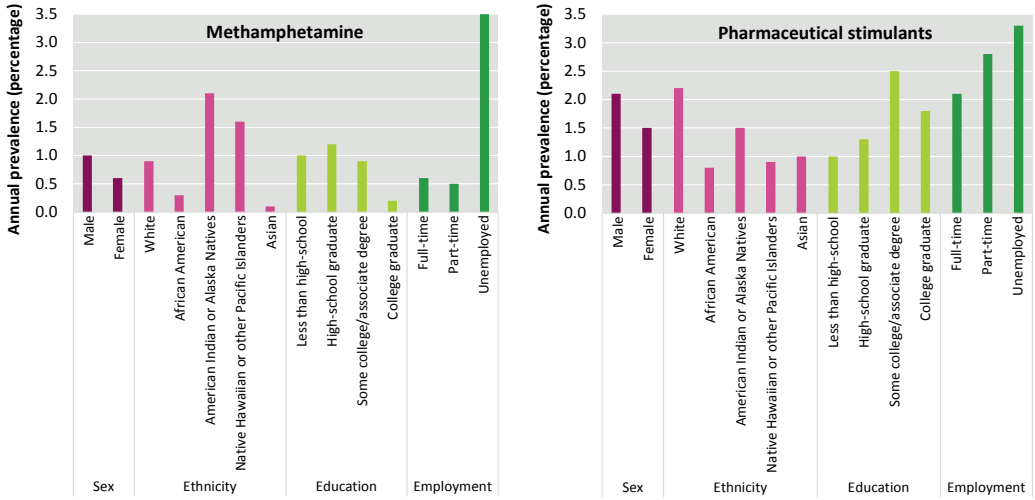


Source: United States, Substance Abuse and Mental Health Services Administration, National Survey on Drug Use and Health (for different years).

309 Organization of American States, Inter-American Drug Abuse Control Commission, *A Report on Students' Drug Use in 13 Caribbean Countries: Antigua and Barbuda, The Bahamas, Barbados, Belize, Dominica, Grenada, Guyana, Haiti, Jamaica, St. Kitts and Nevis, St. Lucia, St. Vincent and the Grenadines, Trinidad and* Tobago (2016), document OEA/Ser.L/XIV.6.46.

310 United States, Substance Abuse and Mental Health Services Administration, *Results from the 2019 National Survey on Drug Use and*

FIG. 51 Methamphetamine use and non-medical use of pharmaceutical stimulants among people aged 18 and older, by sociodemographic characteristics, United States, 2019



Source: United States, Substance Abuse and Mental Health Services Administration, *Results from the 2019 National Survey on Drug Use and Health: Detailed Tables* (Rockville, Maryland, Center for Behavioral Health Statistics and Quality, 2020).

The non-medical use of pharmaceutical stimulants in the United States was more prevalent among people aged 18–25 than among other age groups in 2019. Among those aged 18 years and older, the misuse of pharmaceutical stimulants and use of methamphetamine was higher among men than women, and also higher among the unemployed than the employed. The non-medical use of pharmaceutical stimulants was comparatively higher among the white population and those with a college degree, while methamphetamine use was higher among those who had completed high school and among American Indian or Alaskan Natives and Native Hawaiian or other Pacific Islanders.[311]

While the use of methamphetamine is reported by fewer individuals than is the non-medical use of pharmaceutical stimulants in the United States, the use of methamphetamine appears to be more regular and potentially more harmful. In 2019, 0.5 per cent of the population aged 18 and older reported having used methamphetamine in the past 30 days, 38 per cent of whom were daily or near-daily users. By contrast, the 0.6 per cent of the population aged 18 and older who had used pharmaceutical stimulants non-medically in the past month had, on average, used them for five days in the past month, and only 7 per cent of them were daily or near-daily users. Among people aged 18 and older who were diagnosed with substance use disorders, the prevalence of past-year use of methamphetamine was 0.4 per cent, compared with a 0.2 per cent prevalence for the non-medical use of pharmaceutical stimulants.[312]

Increase in methamphetamine-related overdose deaths in the United States

In recent years, reported methamphetamine per-gram purity in the United States has remained high, above 95 per cent on average, while prices have declined considerably.[313] While the COVID-19 pandemic may have had a short-term effect on the ability of transnational crime groups to obtain precursor chemicals and manufacture methamphetamine, the availability of methamphetamine in the United States market has remained unaffected and

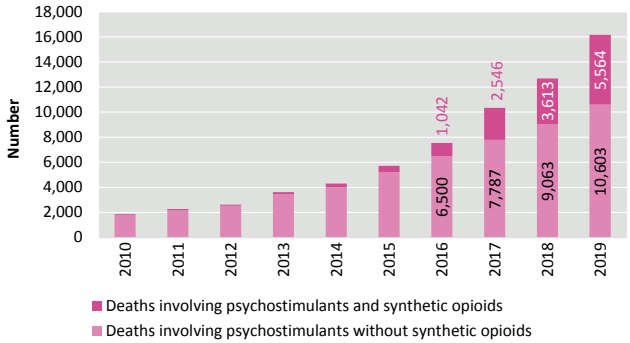
Health: Detailed Tables (Rockville, Maryland, Center for Behavioral Health Statistics and Quality, 2020).

311 Ibid.

312 Ibid.

313 United States, Department of Justice, Drug Enforcement Administration, *2020 National Drug Threat Assessment* (March 2021).

FIG. 52 **Overdose deaths attributed to psychostimulants with and without synthetic opioids, United States, 2010–2019**



Source: United States, Centers for Disease Control and Prevention, National Center on Health Statistics, Wide-ranging Online Data for Epidemiologic Research (CDC Wonder).

Note: The category of "psychostimulants" refers to psychostimulants with abuse potential and mainly includes methamphetamine; and the category of "other synthetic opioids" is dominated by fentanyl.

the price of methamphetamine has remained low in general compared with other drugs. Nevertheless, the price of methamphetamine, like the price of other drugs, is considered to have continued to fluctuate during the pandemic.[314]

The concomitant use of opioids and methamphetamine has also emerged as a major issue that is increasingly reported in the rural United States.[315, 316] In a sample of people in treatment for opioid use disorders between 2011 and 2018, the polydrug use of methamphetamine was seen to be increasingly common.[317, 318, 319] Moreover, in recent forensic laboratory reports, in the rare cases in which opioids had been combined with methamphetamine at source, the combinations were of methamphetamine, fentanyl and fentanyl analogues.[320]

The number of overdose deaths attributed to the use of psychostimulants[321] (including methamphetamine) has also increased considerably in the United States over the past decade (a 76-fold increase). Since 2016, this increase has been particularly marked in cases involving both psychostimulants and synthetic opioids, which in 2019 accounted for one third of all overdose deaths attributed to psychostimulants.

Stable trends in use of amphetamines in Western and Central Europe, but amounts consumed on the increase

In Europe in 2019, it is estimated that 0.5 per cent of the population, or 2.5 million people, had used amphetamines in the past year. The past-year prevalence of amphetamines use is higher in Western and Central Europe (0.6 per cent, or nearly 2 million past-year users) than in Eastern Europe, as calculated on the basis of estimates from previous years because current prevalence could not be estimated due to the paucity of recent data from the subregion. In the Russian Federation, data on drug treatment admissions suggest an increase in the use of amphetamine, with an increasing trend in the proportion of people entering treatment for amphetamine use disorders for the first time, who accounted for 18 per cent of first-time admissions into drug treatment in 2019, compared with just 2 per cent of first-time admissions in 2010.[322]

In Western and Central Europe, amphetamine is more commonly used than methamphetamine, the use of the latter being reported mainly in Czechia, although increasing use of the drug is now also being reported in other countries, such as Cyprus, Germany (the eastern part), Slovakia and Spain, as well as in parts of northern Europe.[323] With an estimated past-year prevalence of 1.0 per cent, the use of amphetamines is higher among young

314 Ibid.

315 Luke Michael Novack and others, "Injection opioid and injection methamphetamine use in the rural United States: a systematic review and network analysis", *Journal of Drug Issues*, vol. 50, No. 2 (April 2020).

316 Theodore J. Cicero, Matthew S. Ellis and Zachary A. Kasper, "Polysubstance use: a broader understanding of substance use during the opioid crisis", *American Journal of Public Health*, vol. 110, No. 2 (February 2020), pp. 244–250.

317 Ibid.

318 Christopher M. Jones, Natascha Underwood and Wilson M. Compton, "Increases in methamphetamine use among heroin treatment admissions in the United States, 2008-17", *Addiction*, vol. 115, No. 2 (February 2020), pp. 347–353.

319 Matthew S. Ellis, Theodore J. Cicero and Zachary A. Kasper, "Twin epidemics: the surging rise of methamphetamine use in chronic opioid users", *Drug and Alcohol Dependence*, vol. 192 (2018), pp. 14–20.

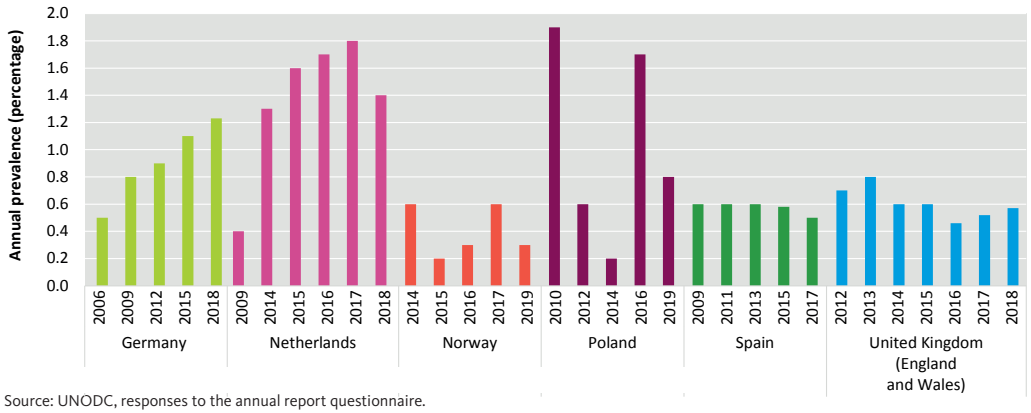
320 United States, Department of Justice, Drug Enforcement Administration, *2020 National Drug Threat Assessment*.

321 Psychostimulants with abuse potential include methamphetamine, amphetamine, methylphenidate and MDMA. Between 2010 and 2015 approximately 85–90 per cent of the drug poisoning deaths that were reported under the category of psychostimulants mentioned methamphetamine in the death certificate.

322 See also booklet 3 of the present report.

323 EMCCDA, *European Drug Report 2018: Trends and Developments* (Luxembourg, Publications Office of the European Union, 2018).

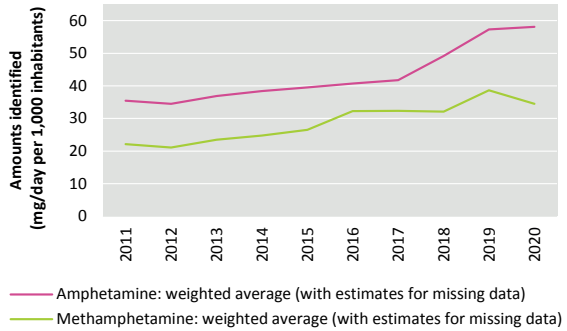
FIG. 53 Trends in the use of amphetamines, countries with recent data in Western and Central Europe



Source: UNODC, responses to the annual report questionnaire.

adults aged 15–34 than among other age groups.[324] Long-term trend data show that since 2009 the use of amphetamines has remained relatively stable in most countries in Western and Central Europe.[325] The most recent data in the few countries in the subregion that have conducted repeated surveys show either a stable or a declining trend in the use of amphetamines, except in Germany.

FIG. 54 Quantities of amphetamine and methamphetamine found in wastewater, 147 cities in Europe, 2011–2020



Source: UNODC calculations based on wastewater data provided by Sewage Analysis Core Group Europe (SCORE).

Note: Average quantity of amphetamine/methamphetamine found in wastewater in 147 cities in 31 countries, weighted by the population of the sites; assumption of gradual increase/decrease in years in which no analysis took place in a city and no change since latest available data. Including estimates for missing data. For amphetamine, statistical outliers that are in all likelihood related to the dumping of waste from local amphetamine manufacture have been excluded from the data analysis.

Findings from wastewater analysis indicate that the use of amphetamine and methamphetamine increased in Europe over 2011–2019; however, the consumption of methamphetamine declined in 2020 while that of amphetamine remained rather stable. The findings also confirm that in Europe consumption of amphetamine is higher than that of methamphetamine. Per capita daily consumption of amphetamine in 2020 was nearly twice (1.8 times) that of methamphetamine in all the 147 cities across Europe taken together. The level of methamphetamine found in wastewater was higher than that of amphetamine in the following countries: Czechia, Germany (the eastern part), northern Italy (Milan), Latvia (Riga), Slovakia, Spain (Barcelona), and in Switzerland (Zurich).

Stable trends in the use of methamphetamine in Australia and New Zealand

In Australia in 2019, an estimated 1.3 per cent of the population aged 14 and older, or 300,0000 people, had used amphetamines in the previous year – a slight decline from 1.4 per cent reported in 2016, although the rate has declined since its peak of 3.4 per cent in 2001.[326]

324 Ibid.

325 EMCCDA, *European Drug Report 2020: Trends and Developments* (Luxembourg, Publications Office of the European Union, 2020).

326 Australian Institute of Health and Welfare, *National Drug Strategy Household Survey 2019*.

Crystalline methamphetamine was the main form of the drug used in the previous 12 months, used by half of those who reported use of amphetamines in 2019. The percentage of people using crystalline methamphetamine daily and weekly has also doubled from the 12.4 per cent reported in 2010 to 29 per cent in 2019. Overall, the use of amphetamines among young adults (aged 20–29) in Australia has been declining since 2013, while it has remained stable among those aged 40 and older.[327]

Wastewater analysis across Australia, however, estimated that 11,147 kg of methamphetamine was consumed in 2020, which was 33 per cent higher than the amount consumed (8,405 kg) in the fiscal year 2016/17 when the four-year wastewater monitoring programme began, but lower than the estimated amount in 2018/19 (11,516 kg). The population-weighted average consumption of methamphetamine decreased in 2020 in both capital city sites and regional sites, possibly as a result of the impact of COVID-19 restrictions on methamphetamine supply in Australia.[328] The estimated per capita consumption of methamphetamine in 2020 ranged between 1,200 mg (average of capital city sites) and 1,400 mg (average of regional sites) per day per 1,000 people.[329]

Considered to have a higher purity than the powder form of the drug, crystalline methamphetamine remains the substance most often injected in the past month among people who regularly inject drugs in Australia,[330] although half of those individuals report heroin as their drug of choice.[331] The frequency of crystalline methamphetamine use remained stable from 2019 to 2020 among people who regularly inject drugs, who reported a median of 48 days of use, or twice weekly. One third of people who regularly inject crystalline methamphetamine thought it was difficult to obtain the drug in 2020, a significant increase compared with 2019, when the figure was 5 per cent. Also, at the beginning of March 2020, 90 per cent of people who inject crystalline methamphetamine considered the price of the drug to have increased, while 59 per cent considered the purity of crystalline methamphetamine to have decreased, indications of the impact of the disruption caused by the COVID-19 pandemic.[332]

The number of drug-induced deaths related to methamphetamine and other stimulants (including amphetamine, methamphetamine, "ecstasy" or MDMA, and caffeine) in Australia has increased considerably over the past decade. The death rate in 2019 was four times higher than in 2000: there were a reported 2.0 deaths per 100,000 population in 2019 compared with 0.5 deaths per 100,000 population in 2000.[333]

In New Zealand, 0.8 per cent of the population aged 15–64 was estimated to have used amphetamines (mainly methamphetamine) in 2018, a prevalence of use that has generally remained stable over the past few years. Methamphetamine was the most detected drug in the analysis of wastewater in 2019, with an estimated average consumption of 15 kg each week, ranging from nearly 1,000 mg per day per 1,000 people in Northland to 100 mg per day per 1,000 people in the southern parts of the country in the second quarter of 2019.[334] The average price per gram of methamphetamine dropped to an all-time low of 250 New Zealand dollars nationally in 2019, suggesting an increase in the availability of the drug.[335]

Use of "ecstasy"

"Ecstasy" is a term that was originally used to describe tablets containing MDMA. However, an increasing number of different substances or products marketed as "ecstasy" have appeared on the markets in the past two decades.[336] From the mid- to late 2000s, owing in particular to the declining availability of and controls placed on the precursors used to manufacture MDMA, the tablets sold as "ecstasy" in the various markets contained ever decreasing quantities of MDMA as the active

327 Ibid.

328 Australian Criminal Intelligence Commission, University of Queensland and University of South Australia, *National Wastewater Drug Monitoring Program: Report No. 12.*

329 Ibid.

330 In 2019, the purity of crystalline methamphetamine was reported as 75–78 per cent, which has remained stable since 2014, while the powder form, which earlier had had a purity of 10–20 per cent, was also reported to have reached a level of purity similar to crystalline methamphetamine, as reported in "*Methamphetamine use and related harms in NSW: Surveillance report to December 2019*" (Ministry of Health, New South Wales, November 2020).

331 Amy Peacock and others, *Australian Drug Trends 2020: Key Findings from the National Illicit Drug Reporting System (IDRS) Interviews* (Sydney, University of New South Wales, National Drug and Alcohol Research Centre, 2021).

332 Ibid.

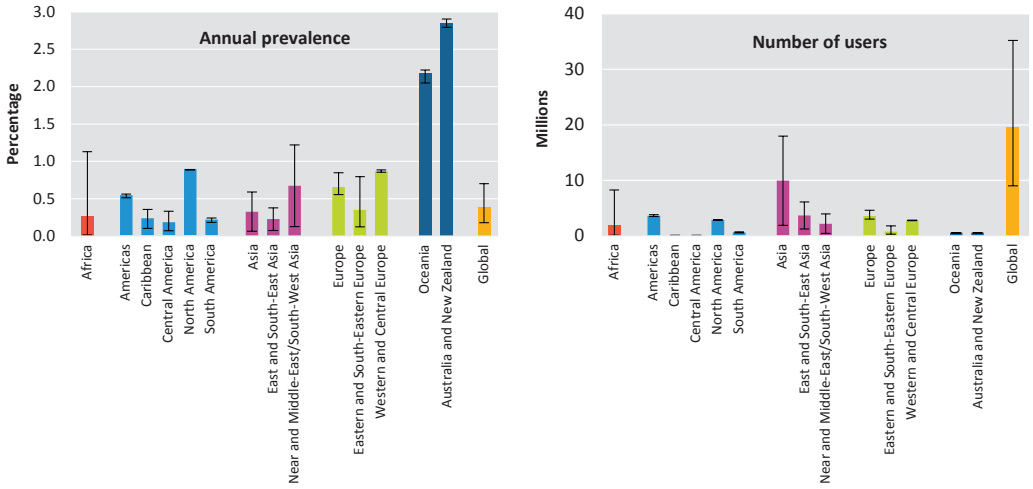
333 Australian Institute of Health and Welfare, "Alcohol, tobacco and other drug use in Australia: impact 2021", 16 April 2021.

334 New Zealand Police, "Wastewater drug testing in New Zealand: quarter two findings 2019", December 2020.

335 Response submitted by New Zealand to the annual report questionnaire.

336 See also *World Drug Report 2017*, booklet 4, *Market Analysis of Synthetic Drugs: Amphetamine-type Stimulants, New Psychoactive Substances* (United Nations publication, 2017).

FIG. 55 "Ecstasy" use, by region, 2019



Source: UNODC estimates, based on responses to the annual report questionnaire.

Notes: Data are not shown for subregions where recent estimates (from the past 10 years) were not available from countries, and thus subregional estimates could not be computed. For 2019, the estimated global number and prevalence of "ecstasy" use are based on estimates from 84 countries covering 76 per cent of the world population. Of those, new data points were reported for 10 countries in 2019.

ingredient and showed increasing adulteration, as well as substitution with other psychoactive substances.[337] As a result over the years "ecstasy" tablets containing little or no MDMA, and containing any of its analogues (including MDA and MDEA), substituted with other chemicals such as PMA or PMMA, or containing NPS (including 2C-B or piperazines), were reported, although not necessarily in all markets at the same time.[338, 339, 340]

While those diverse "ecstasy" products have persisted in different markets, since 2010/11, "ecstasy" products with a high MDMA content have gradually re-emerged, especially in the European market, as well as elsewhere. For example, in Europe tablets with an average of 125 mg of MDMA have been reported (although they also contain binding agents), compared with the 50–80 mg of MDMA reported in the 1990s and 2000s.[341] The forms of "ecstasy" have also diversified; it may also be sold in powder form as finely ground MDMA crystals, with other substances added, and in a crystal form that may contain MDMA in the purest form.[342, 343] In the European drug markets, for instance, MDMA crystal, powder and tablets can be found side by side in the market, sometimes as competing products.[344]

Notwithstanding the diversity of "ecstasy" products, they are still commonly referred to as "ecstasy" in many parts

337 Jane Mounteney and others, "Nine reasons why ecstasy is not quite what it used to be", *International journal of Drug Policy*, vol. 51 (2018), pp. 36–41.

338 Joseph J. Palamar, "There's something about Molly: the underresearched yet popular powder form of ecstasy in the United States", *Substance Abuse*, vol. 38, No. 1 (2017).

339 Claudio Vidal Giné and others, "Crystals and tablets in the Spanish ecstasy market 2000-2014: are they the same or different in terms of purity and adulteration?" *Forensic Science International*, vol. 263 (2016), pp. 164-168.

340 EMCDDA, *Recent Changes in Europe's MDMA/Ecstasy Market: Results from an EMCDDA Trendspotter Study*, EMCDDA Rapid Communication Series (Luxembourg, Publications Office of the European Union, 2016).

341 Jane Mounteney and others, "Nine reasons why ecstasy is not quite what it used to be", *International journal of Drug Policy*, vol. 51 (2018), pp. 36–41.

342 See also UNODC, *World Drug Report 2017*, booklet 4, *Market Analysis of Synthetic Drugs: Amphetamine-type Stimulants, New Psychoactive Substances*.

343 EMCDDA, *Recent Changes in Europe's MDMA/Ecstasy Market: Results from an EMCDDA Trendspotter Study*, EMCDDA Rapid Communication Series (Luxembourg, Publications Office of the European Union, 2016).

344 Mounteney and others, "Nine reasons why ecstasy is not quite what it used to be".

partsof the world; however, in some reports in Europe,[345] such products are categorized as MDMA. It is difficult to determine which of the "ecstasy" products are predominantly used in a subregion. Nevertheless, in the following sections the term "ecstasy" has been used to describe the use of "ecstasy" or MDMA-type products in the different regions.

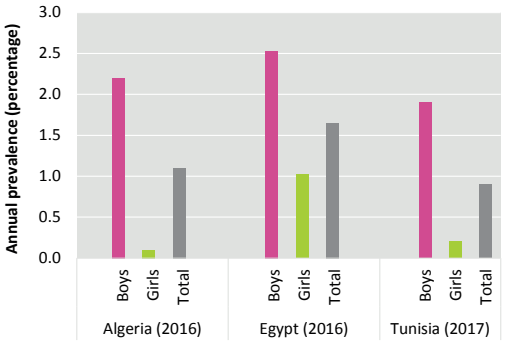
Reflecting the level of uncertainty in the estimates of "ecstasy" use in some subregions, in 2019 it was estimated that between 0.2 per cent and 0.7 per cent (best estimate: 0.4 per cent) of the global population aged 15–64, or between 9 million and 35 million (best estimate: 20 million) people, had used "ecstasy" in the past year. Past-year prevalence of "ecstasy" use is higher than the global average in the subregion of Australia and New Zealand (2.8 per cent), North America (0.9 per cent) and Western and Central Europe (0.9 per cent). The extent of "ecstasy" use in the other subregions, where data are available and prevalence can be estimated, is lower than the global average.

Low levels of "ecstasy" use in Asia and Africa

The prevalence of "ecstasy" use in Asia is estimated at 0.3 per cent of the adult population, or nearly 10 million past-year users. Recent data from East and South-East Asia show that "ecstasy" use was estimated at 0.4 per cent of the population in both Indonesia (among adults, corresponding to nearly 700,000 people) and Thailand (112,000 people). Elsewhere in the region, a recent drug use survey among secondary school students in Kazakhstan (2019) indicated that between 0.3 per cent and 1.2 per cent of students had used "ecstasy" in the past 12 months.[346] In Afghanistan, between 1.3 per cent and 2.6 per cent of secondary school students in 2019 were estimated to have used the form of "ecstasy" commonly known as "tablet K" in the country.[347, 348]

"Ecstasy" use in Africa is estimated at 0.3 per cent, or about 1.9 million past-year users. In Nigeria, past-year use of "ecstasy" in 2018 was estimated at 0.4 per cent among men and 0.3 per cent among women (340,000 past-year users aged 15–64).[349] In North Africa, recent school survey results show a higher level of past-year use of "ecstasy", at about 1 per cent, with the drug's use significantly higher among boys than girls.

FIG. 56 "Ecstasy" use among adolescents (aged 15–17), selected countries with recent data in North Africa



Source: EMCDDA, Mediterranean School Survey Project on Alcohol and Other Drugs Schools, reports for Algeria, Egypt and Tunisia.

Prevalence of "ecstasy" use in Central and South America is low but is on the increase in some countries

The use of "ecstasy" in South and Central America and the Caribbean remains relatively low, with an estimated annual prevalence of around 0.2 per cent in each of the subregions, ranging from 60,000 past-year users of "ecstasy" each in the Caribbean and Central America to 600,000 in South America in 2019. In some countries (Argentina, Chile and Uruguay) in South America for which recent estimates and trend data are available, the annual prevalence of "ecstasy" use, while still low, has increased in the past decade. The largest increase has been observed in Uruguay, where the past-year prevalence nearly doubled over the period 2014–2018.

Overall stable trends in "ecstasy" use in North America

In North America (including Mexico), it is estimated that in 2019, 0.9 per cent of the population aged 15–64, or 2.9 million people, had used "ecstasy" in the past year.

345 EMCDDA, *Recent Changes in Europe's MDMA/Ecstasy Market: Results from an EMCDDA Trendspotter Study.*

346 UNODC, "Youth survey on drug use and health in Kazakhstan".

347 "Tablet K" is the street name for a drug with stimulant effects and may contain methamphetamine, MDMA or a range of other substances, as reported in UNODC, "Afghanistan synthetic drugs situation assessment", 2017.

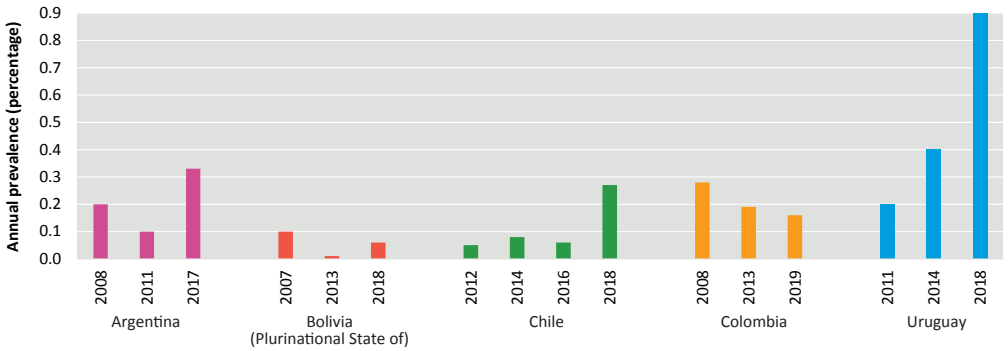
348 UNODC, "Youth study on substance use and health in Afghanistan".

349 UNODC and Nigeria, *Drug Use in Nigeria 2018.*

In the United States, "ecstasy" use has remained stable since 2015 (data prior to 2015 are not comparable for the purpose of trend analysis due to methodological changes); in 2019, 0.9 per cent of the population aged 12 and older, or 2.5 million people, were estimated to have used "ecstasy" in the past year.[350] The annual prevalence of "ecstasy" use was estimated to be the highest among young adults aged 18–25, who accounted for over 1 million past-year users (3.2 per cent of that age group).

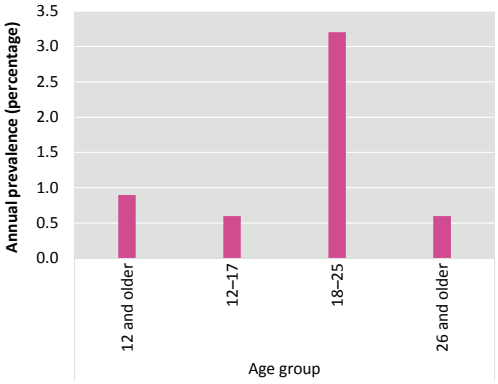
In Canada, by contrast, "ecstasy" use increased over the period 2015–2017, with 271,000 people aged 15 and older (0.9 per cent) estimated to be past-year "ecstasy" users in 2017 (the latest year for which data were available).

FIG. 57 Trends in "ecstasy" use among the adult population, selected countries with recent data in South America



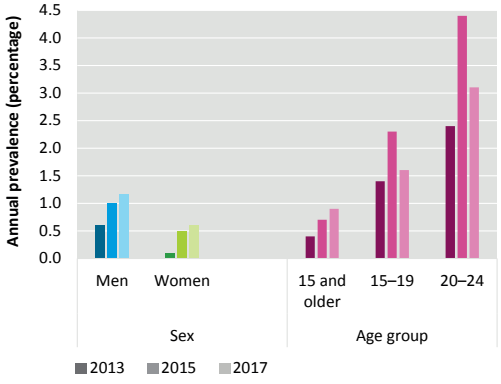
Source: UNODC, responses to the annual report questionnaire.

FIG. 58 "Ecstasy" use, by age group, United States, 2019



Source: United States, Substance Abuse and Mental Health Services Administration, *Results from the 2019 National Survey on Drug Use and Health: Detailed Tables* (Rockville, Maryland, Center for Behavioral Health Statistics and Quality, 2020).

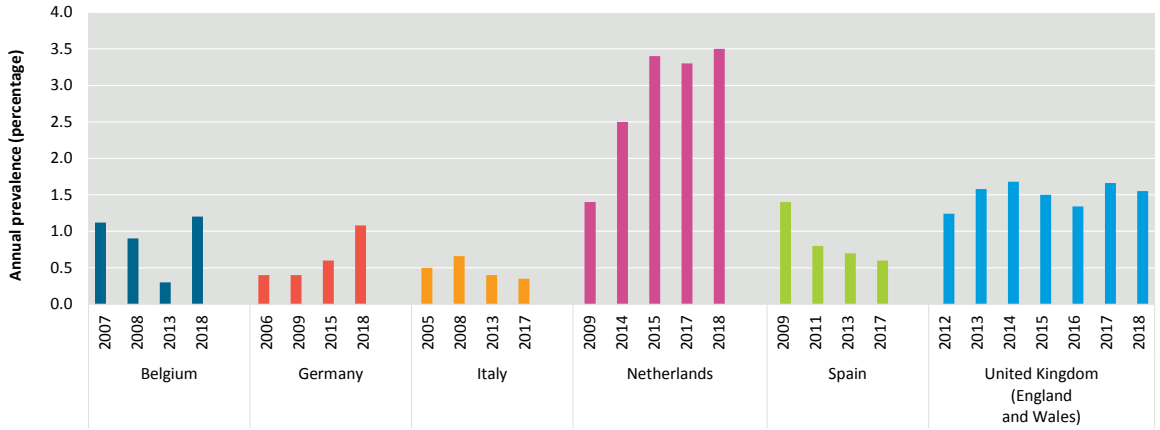
FIG. 59 "Ecstasy" use, by sex and age group, Canada, 2013–2017



Source: Health Canada, Canadian Tobacco, Alcohol and Drugs Survey, 2013, 2015 and 2017.

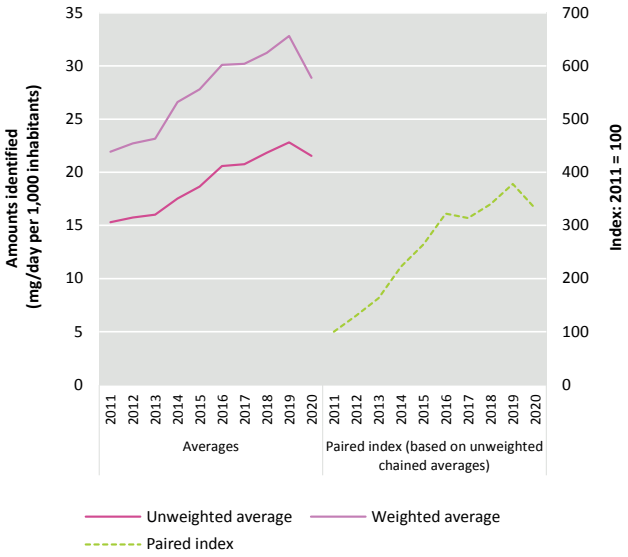
350 United States, Substance Abuse and Mental Health Services Administration, *Results from the 2019 National Survey on Drug Use and Health: Detailed Tables* (Rockville, Maryland, Center for Behavioral Health Statistics and Quality, 2020).

FIG. 60 Trends in "ecstasy" use, selected countries in Western and Central Europe



Source: UNODC, responses to annual report questionnaire.

FIG. 61 Quantities of MDMA found in wastewater, 146 cities in Europe, 2011–2020



Source: UNODC calculations based on wastewater data provided by Sewage Analysis Core Group Europe (SCORE).

Note: Average quantity of MDMA found in wastewater in 146 cities in 30 countries, weighted by the population of the sites; assumption of gradual increase/decrease in years in which no analysis took place in a city and no change since latest available data. Including estimates for missing data.

As in other countries, the highest past-year prevalence was that reported among young adults (those aged 20–24). The increase in past-year "ecstasy" use over the period 2013–2017 was more marked among women than men and among young adults than for other age groups.

Stable trends in "ecstasy" use in Western and Central Europe

In 2019, roughly 0.7 per cent of the population (3.6 million people) aged 15–64 in Europe was estimated to have used "ecstasy" in the past year, with the prevalence of use in Western and Central Europe (0.9 per cent, or 2.8 million past-year users) much higher than in Eastern and South-Eastern Europe (0.4 per cent, or less than 800,000 people). In Western and Central Europe, the countries that reported recent survey data show a rather stable trend in the use of "ecstasy", with the exception of Germany.

Wastewater analysis in 146 cities across Europe, on the other hand, showed an increase in consumption of MDMA over the period 2011–2019, followed by a decline in the spring of 2020 compared with the previous year. This decline is in line with reports that the lockdown measures during the COVID-19 pandemic had reduced opportunities for people to use MDMA at recreational events, which characterise the use of MDMA. Overall, 34 European cities reported a decline and only 21 cities

reported an increase in the quantities of MDMA found in wastewater in 2020.

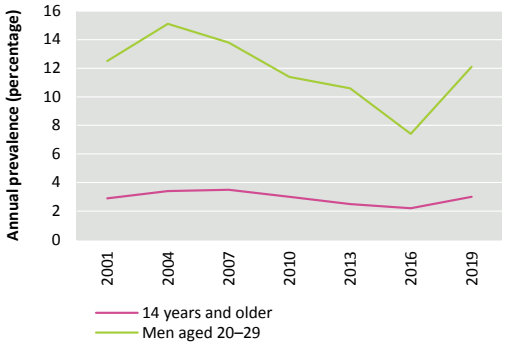
Among adolescents aged 15–16, based on school survey data from 32 European countries, "ecstasy" was, after cannabis, the most commonly used substance in 2019, with 2.3 per cent of them having used it at least once in their lifetime, ranging from 0.9 per cent in Spain to 5.2 per cent in Estonia. The average prevalence of use for boys and for girls was similar.[351]

Increasing use of "ecstasy"in Australia and New Zealand

The past-year prevalence of "ecstasy" use in Australia has been declining since the peak of 3.4 per cent reported in 2004; a recent survey, however, reported a rebound in the use of "ecstasy" in 2019, with the past-year prevalence estimated at 3.0 per cent among the population aged 14 and older.[352] While there has been no statistically significant changes among women, there has been an increase among young men (in their 20s and 30s), with "ecstasy" use in that age group returning to levels similar to those reported in 2010. In 2019, nearly half of past-year users reported using "ecstasy" once or twice a year, while a third reported using it every few months. However, the proportion of those who reported use of "ecstasy" at least once a week or more increased in 2019 to 6.7 per cent of past-year users, nearly twice the proportion reported in 2010.

Among people who regularly use "ecstasy" and stimulants, "ecstasy" capsules were the most common form of the drug used in the past six months. Among those who reported recent use, the proportion of people reporting weekly or more frequent use of "ecstasy" remained stable from 2019 to 2020 (27 per cent of regular "ecstasy" users).[353] However, overall use of "ecstasy" appears to have decreased during the COVID-19 lockdowns and associated mobility restrictions, with 80 per cent of regular users reporting that there were fewer

FIG. 62 **Trends in "ecstasy" use, Australia, 2001–2019**



Source: Australian Institute of Health and Welfare, National Drug Strategy Household Survey 2019, Drug Statistics series No. 32, PHE 270 (Canberra, 2020).

opportunities for them to socialize with others than prior to the pandemic.[354]

Wastewater analysis in Australia estimated that 2,630 kg of MDMA was consumed in 2020, more than double the amount consumed when the four-year wastewater monitoring programme began in the fiscal year 2016/17; the estimated per capita consumption of MDMA ranged between 200 mg (average in capital city sites) and 250 mg (average in regional sites) per day per 1,000 people. Also, the population-weighted average quantity of MDMA consumed has remained relatively stable in capital city sites and increased in regional sites in Australia during the four years of the wastewater monitoring programme.[355]

The past-year prevalence of "ecstasy" use in New Zealand was estimated at 2 per cent in 2013, the latest year for which data are available. However, wastewater analysis points to an increase in the quantity of MDMA consumed in the country, which reached a record of 11.9 kg in the week the test took place in February 2020, a 556 per cent increase compared with the quantities consumed in the previous year.[356] Having said that, in the second quarter of 2020, weekly average MDMA consumption declined

351 EMCDDA and European School Survey Project on Alcohol and Other Drugs (ESPAD) Group, *ESPAD Report 2019: Results from the European School Survey Projects on Alcohol and Drugs*, EMCDDA Joint Publications Series (Luxembourg, Publications Office of the European Union, 2020).

352 Australian Institute of Health and Welfare, *National Drug Strategy Household Survey 2019.*

353 Amy Peacock and others, *Australian Drug Trends 2020: Key Findings from the National Illicit Drug Reporting System (IDRS) Interviews.*

354 Ibid.

355 Australian Criminal Intelligence Commission, University of Queensland and University of South Australia, *National Wastewater Drug Monitoring Program: Report No. 12.*

356 Responses submitted by New Zealand to the annual report questionnaire 2020.

to 7.1 kg, with an estimated average daily consumption of 350 mg of MDMA per 1,000 people.[357] In New Zealand, it is suspected that MDMA is commonly used as a replacement for alcohol, which potentially integrates its use into everyday, casual use, in particular among younger people.[358]

357 New Zealand Police, "Wastewater drug testing in New Zealand: quarter two 2020 findings", December 2020.

358 Responses submitted by New Zealand to the annual report questionnaire 2020.

ANNEX

TABLE 1 Annual prevalence of the use of cocaine, amphetamine-type stimulants and "ecstasy", by region and globally, 2019

Region or subregion	Cocaine[a]						Amphetamines[b] and prescription stimulants						"Ecstasy"					
	Number (thousands)			Prevalence (percentage)			Number (thousands)			Prevalence (percentage)			Number (thousands)			Prevalence (percentage)		
	Best estimate	Lower	Upper	Best estimate	Lower	Upper	Best estimate	Lower	Upper	Best estimate	Lower	Upper	Best estimate	Lower	Upper	Best estimate	Lower	Upper
Africa	**1,950**	**520**	**4,260**	**0.27**	**0.07**	**0.58**	**2,720**	**690**	**5,810**	**0.38**	**0.10**	**0.82**	**1,890**	**100**	**8,270**	**0.26**	**0.01**	**1.13**
East Africa	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
North Africa	407	311	483	0.27	0.21	0.32	-	-	-	-	-	-	-	-	-	-	-	-
Southern Africa	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
West and Central Africa	431	71	967	0.15	0.02	0.34	780	50	1,810	0.28	0.02	0.66	-	-	-	-	-	-
Americas	**10,360**	**9,180**	**11,470**	**1.54**	**1.36**	**1.70**	**8,710**	**8,190**	**9,460**	**1.30**	**1.22**	**1.41**	**3,620**	**3,460**	**3,790**	**0.54**	**0.51**	**0.56**
Caribbean	180	80	320	0.63	0.29	1.14	-	-	-	-	-	-	60	30	100	0.23	0.10	0.36
Central America	310	140	520	0.96	0.44	1.62	310	190	440	0.98	0.61	1.41	60	20	110	0.17	0.07	0.33
North America	6,880	6,740	7,030	2.12	2.08	2.17	7,380	7,330	7,420	2.29	2.27	2.30	2,890	2,880	2,890	0.89	0.89	0.89
South America	2,990	2,220	3,610	1.03	0.77	1.24	770	650	900	0.27	0.23	0.31	610	520	690	0.21	0.18	0.24
Asia	**2,030**	**1,620**	**2,600**	**0.07**	**0.05**	**0.08**	**12,670**	**11,920**	**13,500**	**0.42**	**0.39**	**0.44**	**9,930**	**1,880**	**17,980**	**0.32**	**0.06**	**0.59**
Central Asia and Transcaucasia	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
East and South-East Asia	780	530	1,030	0.05	0.03	0.06	9,860	9,510	10,280	0.61	0.59	0.64	3,670	1,220	6,120	0.23	0.08	0.38
South-West Asia/ Near and Middle East	160	30	440	0.05	0.01	0.14	640	350	920	0.17	0.11	0.29	2,180	410	3,940	0.67	0.13	1.22
South Asia	1,060	1,060	1,060	0.10	0.10	0.10	1,970	1,960	1,970	0.19	0.19	0.19	-	-	-	-	-	-
Europe	**5,000**	**4,630**	**5,520**	**0.92**	**0.85**	**1.02**	**2,510**	**2,050**	**3,070**	**0.46**	**0.38**	**0.56**	**3,550**	**3,000**	**4,600**	**0.65**	**0.55**	**0.85**
Eastern and South-Eastern Europe	580	220	1,070	0.26	0.10	0.48	-	-	-	-	-	-	780	280	1,780	0.35	0.12	0.79
Western and Central Europe	4,430	4,410	4,450	1.39	1.38	1.39	1,950	1,700	2,300	0.61	0.53	0.72	2,770	2,720	2,820	0.87	0.85	0.89
Oceania	**730**	**700**	**730**	**2.70**	**2.60**	**2.73**	**340**	**310**	**350**	**1.27**	**1.16**	**1.33**	**590**	**550**	**600**	**2.18**	**2.05**	**2.22**
Australia and New Zealand	-	-	-	-	-	-	240	240	250	1.26	1.22	1.30	550	540	560	2.84	2.79	2.90
Melanesia	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Micronesia	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Polynesia	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GLOBAL ESTIMATE	**20,060**	**16,650**	**24,580**	**0.40**	**0.33**	**0.49**	**26,950**	**23,160**	**32,190**	**0.54**	**0.46**	**0.65**	**19,570**	**8,990**	**35,240**	**0.39**	**0.18**	**0.70**

Sources: UNODC estimates based on annual report questionnaire data and other official sources.

Note: Prevalence of people who use drugs is the percentage of the population aged 15–64 years.

[a] *Cocaine includes cocaine salt, "crack" cocaine and other types such as coca paste, cocaine base, "basuco", "paco" and "merla".*
[b] *Amphetamines include both amphetamine and methamphetamine.*

TABLE 2 Global illicit cultivation of coca bush, 2009–2019 (hectares)

	2009	2010	2011	2012	2013	1905	2015	2016	2017	2018	2019
Bolivia (Plurinational State of)	30,900	31,000	27,200	25,300	23,000	20,400	20,200	23,100	24,500	23,100	25,500
Colombia [a]	73,000	62,000	64,000	48,000	48,000	69,000	96,000	146,000	171,000	169,000	154,000
Peru [b]	59,900	61,200	64,400								
Peru [c]			62,500	60,400	49,800	42,900	40,300	43,900	49,900	54,100	54,700
Total	**163,800**	**154,200**	**155,600[d]**	**133,700**	**120,800**	**132,300**	**156,500**	**213,000**	**245,400**	**246,200**	**234,200**

Sources: Plurinational State of Bolivia: national illicit crop monitoring system supported by the United Nations Office on Drugs and Crime (UNODC). Colombia: national illicit crop monitoring system supported by UNODC. Peru: national illicit crop monitoring system supported by UNODC.

Note: Different area concepts and their effect on comparability were presented in the World Drug Report 2012 (United Nations publication, Sales No. E.12.XI.1) (p. 41–42). Efforts to improve the comparability of estimates between countries continue; since 2011 the net area under coca bush cultivation on the reference date of 31 December was estimated for Peru, in addition to Colombia. The estimate presented for the Plurinational State of Bolivia represents the area under coca cultivation as interpreted on satellite imagery.

a) Net area on 31 December.

b) Figures represent the area under coca cultivation as interpreted on satellite imagery (without deductions for subsequent eradication).

c) Net area on 31 December, deducting fields eradicated after satellite imagery was taken.

d) The global coca cultivation figure was calculated with the "area as interpreted on satellite imagery" for Peru in 2011.

TABLE 3 Reported eradication of coca bush, 2009–2019

	Method of eradication	Unit	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Bolivia (Plurinational State of)	manual	hectare	6,341	8,200	10,509	11,044	11,407	11,144	11,020	6,577	7,237	11,174	9,205
Colombia	manual	hectare	60,565	43,804	35,201	30,456	22,121	11,703	13,473	17,642	52,001	59,978	94,606
	spraying	hectare	104,772	101,940	103,302	100,549	47,052	55,532	37,199	0	0	0	0
Peru	manual	hectare	10,025	12,033	10,290	14,171	23,785	31,205	35,868	30,150	23,025	25,107	25,526
Ecuador	manual	hectare	6	3	14	..	..	..	..	..	..	..	..
	manual	plants	57,765	3,870	55,030	122,656	41,996	15,874	45,266	20,896	10,100	3,818	..

Source: United Nations Office on Drugs and Crime annual report questionnaire and government reports.

Note: The totals for Bolivia (Plurinational State of) and Peru include voluntary and forced eradication. Reported eradication refers to the sum of all areas eradicated in a year, including repeated eradication of the same fields. Two dots indicate that data are not available.

TABLE 4 Potential manufacture of 100 per cent pure cocaine, 2009–2019 (tons)

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Bolivia (Plurinational State of) [a]	..	..	..	..	..	..	..	..	..	..	..
Colombia [b, c, d]	488	424	384	333	290	368	499	810	1,058	1,120	1,137
Peru [a]	..	..	..	..	..	..	..	..	..	..	..
Total [b, c, d]	***1,188***	***1,134***	***1,090***	***997***	***902***	***869***	***977***	***1,335***	***1,647***	***1,723***	***1,784***

Sources: Plurinational State of Bolivia: calculations based on coca leaf yield surveys by the United Nations Office on Drugs and Crime (UNODC) (Yungas de La Paz) and scientific studies by the Drug Enforcement Administration of the United States of America (Chapare). Colombia: UNODC/Government of Colombia. Peru: calculations based on coca leaf to cocaine conversion ratio from scientific studies by the Drug Enforcement Administration.

Notes: Figures in italics are subject to revision. Two dots indicate that data are not available. Information on estimation methodologies and definitions can be found in the online methodology section of the World Drug Report 2021.

a) Owing to a lack of updated conversion factors in Bolivia (Plurinational State of) and Peru, no final estimates of the level of cocaine production can be provided. Detailed information on the ongoing revision of conversion ratios and cocaine laboratory efficiency is available in the World Drug Report 2010 (United Nations publication, Sales No. E.10.XI.13), p. 249.

b) Values for Colombia for 2014–17 have been revised, using an improved methodology, to take into account the participation of new actors in the processing chain from coca leaf to cocaine. The same methodology was used for 2018. Thus, the values for 2014-18, and hence the global total for the same years, may not be directly comparable to earlier years.

c) Conversion of areas under coca cultivation into coca leaf and then into cocaine hydrochloride, taking yields, amounts of coca leaf used for licit purposes and cocaine laboratory efficiency into account. Current global aggregates are based on "new" conversion ratios representing the most recent data available to UNODC. See World Drug Report 2010 (United Nations publication, Sales No. E.10.XI.13, p. 249) for a discussion of "new" and "old" conversion factors and detailed information on the ongoing revision of conversion ratios and cocaine laboratory efficiency.

d) With respect to data published in the World Drug Report 2016 (United Nations publication, Sales No. E.16.XI.7), the following amendments have been made:

(i) totals for 2009–2012 have been revised to rectify minor inaccuracies in data processing.

GLOSSARY

amphetamine-type stimulants — a group of substances composed of synthetic stimulants controlled under the Convention on Psychotropic Substances of 1971, which includes amphetamine, methamphetamine, methcathinone and the "ecstasy"-group substances (3,4-methylenedioxymethamphetamine (MDMA) and its analogues).

amphetamines — a group of amphetamine-type stimulants that includes amphetamine and methamphetamine.

annual prevalence — the total number of people of a given age range who have used a given drug at least once in the past year, divided by the number of people of the given age range, and expressed as a percentage.

coca paste (or coca base) — an extract of the leaves of the coca bush. Purification of coca paste yields cocaine (base and hydrochloride).

"crack" cocaine — cocaine base obtained from cocaine hydrochloride through conversion processes to make it suitable for smoking.

cocaine salt — cocaine hydrochloride.

drug use — use of controlled psychoactive substances for non-medical and non-scientific purposes, unless otherwise specified.

fentanyls — fentanyl and its analogues.

new psychoactive substances — substances of abuse, either in a pure form or a preparation, that are not controlled under the Single Convention on Narcotic Drugs of 1961 or the 1971 Convention, but that may pose a public health threat. In this context, the term "new" does not necessarily refer to new inventions but to substances that have recently become available.

opiates — a subset of opioids comprising the various products derived from the opium poppy plant, including opium, morphine and heroin.

opioids — a generic term that refers both to opiates and their synthetic analogues (mainly prescription or pharmaceutical opioids) and compounds synthesized in the body.

problem drug users — people who engage in the high-risk consumption of drugs. For example, people who inject drugs, people who use drugs on a daily basis and/or people diagnosed with drug use disorders (harmful use or drug dependence), based on clinical criteria as contained in the *Diagnostic and Statistical Manual of Mental Disorders* (fifth edition) of the American Psychiatric Association, or the *International Classification of Diseases and Related Health Problems* (tenth revision) of WHO.

people who suffer from drug use disorders/people with drug use disorders — a subset of people who use drugs. Harmful use of substances and dependence are features of drug use disorders. People with drug use disorders need treatment, health and social care and rehabilitation.

harmful use of substances — defined in the *International Statistical Classification of Diseases and Related Health Problems* (tenth revision) as a pattern of use that causes damage to physical or mental health.

dependence — defined in the *International Statistical Classification of Diseases and Related Health Problems* (tenth revision) as a cluster of physiological, behavioural and cognitive phenomena that develop after repeated substance use and that typically include a strong desire to take the drug, difficulties in controlling its use, persisting in its use despite harmful consequences, a higher priority given to drug use than to other activities and obligations, increased tolerance, and sometimes a physical withdrawal state.

substance or drug use disorders — referred to in the *Diagnostic and Statistical Manual of Mental Disorders* (fifth edition) as patterns of symptoms resulting from the repeated use of a substance despite experiencing problems or impairment in daily life as a result of using substances. Depending on the number of symptoms identified, substance use disorder may be mild, moderate or severe.

prevention of drug use and treatment of drug use disorders — the aim of "prevention of drug use" is to prevent or delay the initiation of drug use, as well as the transition to drug use disorders. Once a person develops a drug use disorder, treatment, care and rehabilitation are needed.

REGIONAL GROUPINGS

The *World Drug Report* uses a number of regional and subregional designations. These are not official designations, and are defined as follows:

AFRICA

- East Africa: Burundi, Comoros, Djibouti, Eritrea, Ethiopia, Kenya, Madagascar, Mauritius, Rwanda, Seychelles, Somalia, South Sudan, Uganda, United Republic of Tanzania and Mayotte
- North Africa: Algeria, Egypt, Libya, Morocco, Sudan and Tunisia
- Southern Africa: Angola, Botswana, Eswatini, Lesotho, Malawi, Mozambique, Namibia, South Africa, Zambia, Zimbabwe and Reunion
- West and Central Africa: Benin, Burkina Faso, Cabo Verde, Cameroon, Central African Republic, Chad, Congo, Côte d'Ivoire, Democratic Republic of the Congo, Equatorial Guinea, Gabon, Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Mali, Mauritania, Niger, Nigeria, Sao Tome and Principe, Senegal, Sierra Leone, Togo and Saint Helena

AMERICAS

- Caribbean: Antigua and Barbuda, Bahamas, Barbados, Cuba, Dominica, Dominican Republic, Grenada, Haiti, Jamaica, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines, Trinidad and Tobago, Anguilla, Aruba, Bonaire, Netherlands, British Virgin Islands, Cayman Islands, Curaçao, Guadeloupe, Martinique, Montserrat, Puerto Rico, Saba, Netherlands, Sint Eustatius, Netherlands, Sint Maarten, Turks and Caicos Islands and United States Virgin Islands
- Central America: Belize, Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua and Panama
- North America: Canada, Mexico, United States of America, Bermuda, Greenland and Saint-Pierre and Miquelon
- South America: Argentina, Bolivia (Plurinational State of), Brazil, Chile, Colombia, Ecuador, Guyana, Paraguay, Peru, Suriname, Uruguay, Venezuela (Bolivarian Republic of), Falkland Islands (Malvinas) and French Guiana

ASIA

- Central Asia and Transcaucasia: Armenia, Azerbaijan, Georgia, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan
- East and South-East Asia: Brunei Darussalam, Cambodia, China, Democratic People's Republic of Korea, Indonesia, Japan, Lao People's Democratic Republic, Malaysia, Mongolia, Myanmar, Philippines, Republic of Korea, Singapore, Thailand, Timor-Leste, Viet Nam, Hong Kong, China, Macao, China, and Taiwan Province of China
- South-West Asia: Afghanistan, Iran (Islamic Republic of) and Pakistan
- Near and Middle East: Bahrain, Iraq, Israel, Jordan, Kuwait, Lebanon, Oman, Qatar, Saudi Arabia, Syrian Arab Republic, United Arab Emirates, Yemen and State of Palestine
- South Asia: Bangladesh, Bhutan, India, Maldives, Nepal and Sri Lanka

EUROPE

- Eastern Europe: Belarus, Republic of Moldova, Russian Federation and Ukraine
- South-Eastern Europe: Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Montenegro, North Macedonia, Romania, Serbia, Turkey and Kosovo[1]

1 References to Kosovo shall be understood to be in the context of Security Council resolution 1244 (1999).

- Western and Central Europe: Andorra, Austria, Belgium, Cyprus, Czechia, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Liechtenstein, Lithuania, Luxembourg, Malta, Monaco, Netherlands, Norway, Poland, Portugal, San Marino, Slovakia, Slovenia, Spain, Sweden, Switzerland, United Kingdom of Great Britain and Northern Ireland, Holy See, Faroe Islands and Gibraltar

OCEANIA

- Australia and New Zealand: Australia and New Zealand
- Polynesia: Cook Islands, Niue, Samoa, Tonga, Tuvalu, French Polynesia, Tokelau and Wallis and Futuna Islands
- Melanesia: Fiji, Papua New Guinea, Solomon Islands, Vanuatu and New Caledonia
- Micronesia: Kiribati, Marshall Islands, Micronesia (Federated States of), Nauru, Palau, Guam and Northern Mariana Islands

UNODC
United Nations Office on Drugs and Crime

Vienna International Centre, PO Box 500, 1400 Vienna, Austria
Tel: +(43) (1) 26060-0, Fax: +(43) (1) 26060-5866, www.unodc.org

UNODC Research

Consisting of five separate booklets, the *World Drug Report 2021* provides an in-depth analysis of the global drug markets and paints a comprehensive picture of the measurable effects and potential impact of the COVID-19 crisis on the world drug problem.

Booklet 1 summarizes the four subsequent booklets by reviewing their key findings and highlighting their policy implications. Booklet 2 offers a projection of the impact of population growth on drug use by 2030 and gives a global overview of the supply of and demand for drugs, including their health impact and the trafficking of substances over the Internet. Booklet 3 provides an analysis of the global markets for cannabis and opioids, both in terms of supply and use, and includes an overview of the latest developments in countries with measures regulating the non-medical use of cannabis; it also discusses the overlaps between the various opioids and looks at access to pharmaceutical opioids for medical use. Booklet 4 contains the latest trends in and estimates of the markets for stimulants – cocaine, methamphetamine, amphetamine and "ecstasy" – both at the global level and in the most affected subregions. Booklet 5 presents an early assessment of the impact of the COVID-19 pandemic on drug markets by looking at how it has affected drug supply and demand dynamics, including in terms of health consequences and how drug service provision has adapted to the new situation in many countries; the booklet closes with a look at how the pandemic may influence long-term changes in the drug markets.

The *World Drug Report 2021* is aimed not only at fostering greater international cooperation to counter the impact of the world drug problem on health, governance and security, but also, with its special focus on the impact of the COVID-19 pandemic, at assisting Member States in anticipating and addressing challenges that may arise in the near future.

The accompanying statistical annex is published on the UNODC website:
www.unodc.org/unodc/en/data-and-analysis/wdr2021.html

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